AMERICAN ARTISAN

WARM AIR HEATING -- SHEET METAL CONTRACTING
RESIDENTIAL AIR CONDITIONING

NOVEMBER, 1944

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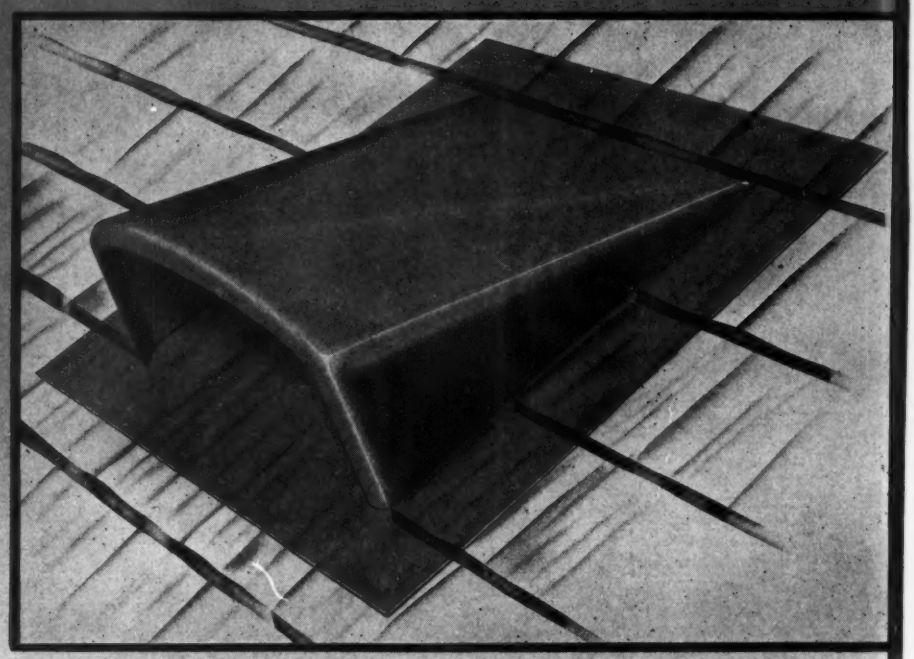
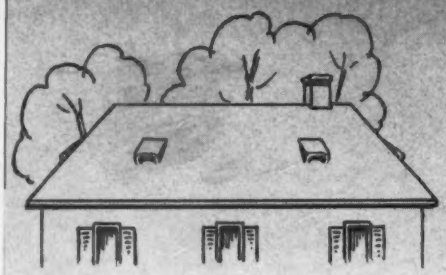
AIR CONTROLS ROOF VENTILATOR



THE ANSWER TO VENTILATING 4 WAY ROOFS



FOR USE ON ROOFS WITH 4 WAY SLANT—WHERE GABLES ARE NOT AVAILABLE

Air Control ROOF VENTILATORS solve the problem of ventilating attics with four-way roofs. ROOF VENTILATORS are built into the roofing and may be used with any type of roofing. The streamlined design acts as an ideal water shed and blends into the roof. Provided with an unusually large opening—13½" x 4"—your assurance of ample ventilation. Built of all steel construction—the top and flange are formed in one piece—eliminating leaky joints. A screen insert keeps out insects, etc. Write for Bulletin 16V describing the complete line of AIR CONTROL ATTIC VENTILATORS or call your Air Control Jobber.

The complete AIR CONTROL LINE includes all of your requirements in Registers • Grilles • Adjustable Ceiling Ventilators • Attic Ventilators and accessories.

ARMY E NAVY

Air Control Products, Inc.

COOPERSVILLE • MICHIGA

Cuts Sheet Metal Like a Hot Knife Cuts Butter!

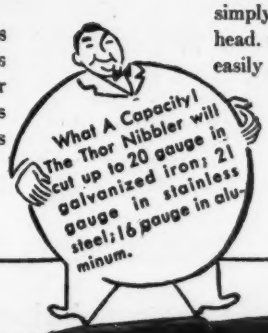
The New **Thor** PORTABLE ELECTRIC **NIBBLER**

SMALL · LIGHT · FAST

2. 5 FEET PER MINUTE is the cutting speed of the Thor Nibbler in 16 gauge aluminum; correspondingly fast cutting in other metals. It will cut to rated capacity in steel; 50% greater in aluminum and other non-ferrous metals; 1 gauge thinner in stainless steel and other hard alloys.

3. PANELS OR SHEET STOCK can be cut by the Thor Nibbler without breaking-in from the edge of the sheet. Internal shapes can be cut simply by making a 1" hole to insert the cutting head. Compact and streamlined, it can be used easily in restricted places.

1. FOR CUTTING SHEET METAL AND TUBING the New Thor Nibbler is fast, accurate and easy to handle. The compact motor housing serves as a hand grip and gives such positive guiding control that regular or irregular shapes can be cut to any line or contour. It will cut on a radius as small as one inch and shapes may be cut from tubing as small as 1½" in diameter.


What A Capacity! The Thor Nibbler will cut up to 20 gauge in galvanized iron; 21 gauge in stainless steel; 16 gauge in aluminum.

ALL SHEET METAL FABRICATORS can save time and money in both shop production and on-the-job installation work with the new Thor Nibbler. Its portability, speed and power cut cutting costs. Use the coupon to get full information today.

INDEPENDENT PNEUMATIC TOOL CO.
600 W. JACKSON BLVD. • CHICAGO, ILLINOIS
Birmingham : Boston : Buffalo : Chicago : Cleveland
Denver : Detroit : Los Angeles : Milwaukee : New York
Philadelphia : Pittsburgh : St. Louis : Salt Lake City
San Francisco : Toronto, Ont. : London, England

Thor offers more!

IN PORTABLE ELECTRIC TOOLS

INDEPENDENT PNEUMATIC TOOL CO.
600 W. Jackson Blvd., Chicago, Ill.

Please send full information, specifications and price on the new Thor Nibbler for cutting sheet metal and tubes.

Name_____

Firm_____

Address_____

City_____ State_____

AMERICAN ARTISAN

WITH WHICH ARE MERGED

FURNACES AND SHEET METALS

AND

Warm-Air Heating

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

J. D. Wilder, Editor — A. A. Kennedy, Assistant Editor

Vol. 113, No. 11 November, 1944 Founded 1880

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In This Issue

IN the post-war sales market, warm air heating must do two things —maintain the acceptance we had in 1940 and extend this acceptance so that no citizen planning to build or buy a home or modernize his existing heating plant will make a single move until he carefully considers the merits of warm air heating.

Realizing this need, the National Warm Air Heating and Air Conditioning Association will consider at the December 13 and 14 meeting in Cleveland a program of national advertising suggested and planned by the association's Publicity and Merchandising Committee.

Details of this far-reaching program are explained on pages 46 and 47. Readers are especially asked to study the proposal for a "Dealers Division" in the association. On pages 46 and 47 are enumerated the things such a dealers organization can do and how the division will be mortised into the manufacturers' association.

❖

There are two important and interesting articles in this month's Air Conditioning Section. First, page 57, is an explanation of the amended order P-55-c. This is the order which specified non metallic materials for straight ducts. The amendment says we can make ducts of metal—if we use idle or excess stocks. AA is trying to find out just what we may do.

And P-55-c was the order which said "no forced air furnaces in any house with a basement." Now forced air furnaces are specifically permitted —basement or no basement. What this means (so far as we can determine now) is explained in the article.

The second article deals with aluminum for furnace pipe and smoke pipe. Never heard of such a thing? See page 63.

❖

If you want to read an interesting article on fabrication, see the 105 mm. shell container description on page 74.

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for INSULATION
for FIREPROOFING
for ECONOMY
Use the BEST

For more than 50 years SAL-MO Asbestos Products have been used for insulation and fireproofing in building and industrial installations.

SAL-MO Asbestos Products include Asbestos Plain and Corrugated Papers, Millboard, No. 77 Ductboard, Pipe Coverings for hot and cold water pipes and high and low temperature steam lines, Tank Jackets, Boiler Cements and many other items.

Telephone ANDOVER 2414

SALL MOUNTAIN COMPANY • 176 WEST ADAMS STREET CHICAGO 3, ILLINOIS

TWO GREAT NAMES IN THE SHEET METAL FIELD JOIN TOGETHER

— to give you improved post-war service, with expanded facilities for production . . . sales . . . deliveries

MILCOR announces the purchase of THE J. M. & L. A. OSBORN Co

Milcor announces the purchase of The J. M. & L. A. Osborn Co., pioneer manufacturer and distributor of sheet metal products, as a major step towards simplifying your post-war purchasing problems and assuring you of quicker post-war deliveries. • Both Milcor and Osborn products will continue to measure up to the same well-known high standards of quality that you have always been able to rely on for good-looking, safe, satisfactory jobs that win satisfied customers. Both organizations will still operate under their own names, with the same personnel continuing to serve you.

When you order, you can count on getting post-war deliveries *fast* — for to Milcor's convenient in-stock delivery points are now added Osborn's strategically-located branches. • For help in winning greater post-war success in the sheet metal business, look to Milcor and Osborn.

G-89

MILCOR STEEL COMPANY

MILWAUKEE 4, WISCONSIN • CANTON 1, OHIO

- Chicago 9, Ill.
- Kansas City 8, Mo.
- Rochester 9, N. Y.
- Los Angeles 44, Calif.
- Baltimore 24, Md.

The Finest Steel Furnaces

MODERN IN PRODUCT-POLICY — AND PROGRAM

SYNCROMATIC

FOR ALL THREE

MODERN in Product Design

MODERN in Company Policy

MODERN in Merchandising Program

Beauty
Safety Economy
Simplicity

DON'T CHAIN YOURSELF TO THE PAST! FACE THE POSTWAR WORLD WITH A PRODUCT YOU CAN BE PROUD OF...

SYNCROMATIC CORPORATION

3373 NORTH HOLTON STREET, MILWAUKEE 12, WISCONSIN

CHECK ✓ AND DOUBLE CHECK ✓ ✓

IN EVERY STAGE OF PURCHASE AND PRODUCTION COUNTLESS TESTS ASSURE DEPENDABILITY OF WHITE-RODGERS CONTROLS

The accuracy and dependability of White-Rodgers temperature and pressure controls begins *when materials enter the factory.*

Every part, every assembly is checked and double checked to make sure it will perform the function for which it was designed.

These preliminary tests plus the rigid final inspection of the finished White-Rodgers control are reflected in the performance of your own equipment.

Write for your copy of the White-Rodgers catalog today!

Checking concentricity between thread diameter and outside diameter of unit nut—held to close tolerance for proper calibration.

Electrically and mechanically checking spring pressure to assure complete range of control operation.

Checking form of gear teeth and relation to shaft assembly over entire circumference by exacting comparator method.

8 EXCLUSIVE FEATURES OF WHITE-RODGERS HYDRAULIC-ACTION TEMPERATURE CONTROLS

1. May be mounted at any angle or position, above, below or on level with control point.

2. Hydraulic-Action Principle incorporating solid-liquid filled bulb and capillary provides expansion force comparable to that of a metal bar.

3. Diaphragm motion uniform per degree of temperature change.

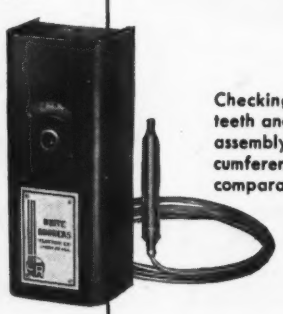
4. Power of solid-liquid charge permits unusually sturdy switch construction resulting in positive contact closure.

5. Heavier, longer-wearing parts are possible because of unlimited power.

6. Dials are evenly and accurately calibrated over their entire range because of straight-line expansion.

7. Controls with remote bulb and capillary are not sensitive to change in room temperature. Accuracy of control is not affected by temperature changes in surrounding area.

8. Not affected by atmospheric pressure. Works accurately at sea level or in the stratosphere without compensation or adjustment.



WHITE-RODGERS ELECTRIC CO.

1215L Cass Ave. St. Louis, Mo.

Controls for Refrigeration • Heating • Air-Conditioning

A New Kind of "Heat Store" When G. I. Joe Comes Home

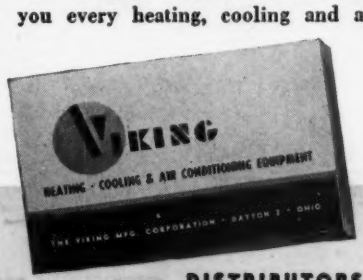
All over the country plumbing and heating contractors and dealers, home appliance stores and others in the heating and cooling trade are gearing their businesses to a *new idea* — selling "YEAR ROUND INDOOR COMFORT." The VIKING line from Room Cooler to Floor Furnace—from conversion Oil Burners to Year Round Air Conditioning (with Mechanical Cooling) — can be counted upon to support the most aggressive efforts of the most able merchandiser.

The VIKING Wholesale Distributor —your one all-inclusive source of supply

The VIKING Wholesale Distributor makes available to you every heating, cooling and air conditioning unit—and every installation material you need to firmly establish yourself in this new business. From one supplier you can get all of the modern equipment you require to compete successfully, whether the desired fuel is oil, coal or gas or whether the problem is heating, cooling or year 'round air conditioning.

This complete, convenient warehousing is provided by the local VIKING EXCLUSIVE WHOLESALER who knows heating and cooling—who offers engineering, financing and merchandising assistance to you.

If you want to investigate your own possibilities in this new business of abundant opportunity get in touch with your VIKING Wholesale Distributor. If you don't know him yet, write us for details.



VIKING

WHOLESALE DISTRIBUTORS PLEASE NOTE

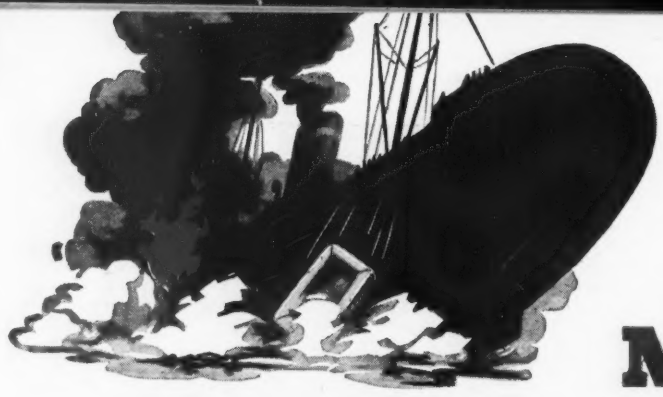
Viking merchandise is sold only thru Wholesale Distributors. Distributors who believe they should supplement their customers efforts—not compete with them—should investigate the exclusive VIKING Franchise. Write us today.

VIKING MFG. CORPORATION
1601 U. B. Bldg., Dayton 2, Ohio
Please send complete new catalog of Viking Heating and Cooling equipment.

Name_____

Firm Name_____

Address_____



MADE TO BE TOSSED OVERBOARD

IN those fateful days when our cargo ships were the daily prey of Nazi subs, old-type life boats couldn't meet the new demands for speedy launching and safety. The Merchant Marine needed a new boat; one that could be put into the water quicker . . . much quicker. So they designed a boat to be simply thrown overboard. It was like a double-sided raft; either side that bobbed up after its dive from the deck was the "right" side. They built it of wood, but wood wasn't strong enough. Then they built it of steel.

Much credit for the success of the Kokomo life raft goes to The Globe-American Corporation, its manufacturer. But we at Continental are proud to supply the steel for its production, and are pleased that our regular Superior Galvanized sheet could meet its difficult requirements. Said Mr. A. P. Chester of Globe-American, "We tried other galvanized sheets but found that Continental's met the forming requirements particularly well and still held their zinc coating."

These same qualities in Continental galvanized sheets make them popular with sheet metal workers. Try them.

CONTINENTAL STEEL CORPORATION . . KOKOMO, INDIANA

CONTINENTAL STEEL CORPORATION ★ SUPERIOR STEEL SHEETS

CONTINENTAL SUPERIOR STEEL

SUPERIOR

CONTINENTAL STEEL CORPORATION

PRODUCERS OF STEEL SHEETS, MANUFACTURER'S WIRE AND CHAIN LINK FENCE

A Symbol of Heating Progress

• For thirty years the name RYBOLT has stood for better heating efficiency, economy and dependability. It has stood for progress in the industry because RYBOLT has pioneered in developments that kept pace with ever changing requirements.

The RYBOLT trade mark is the symbol of that progress in the past. It will continue to represent that progress in the future, because RYBOLT engineers are keeping abreast of new trends and are constantly doing practical research and experiment to improve the product. New designs and new features will be adopted as fast as they prove practical and sound. The postwar RYBOLT line will be a better line for you to handle — more profitable for you to sell and more satisfactory for the consumer to buy. The RYBOLT trade mark is our postwar pledge of heating and air conditioning service that will measure up to the highest standard.

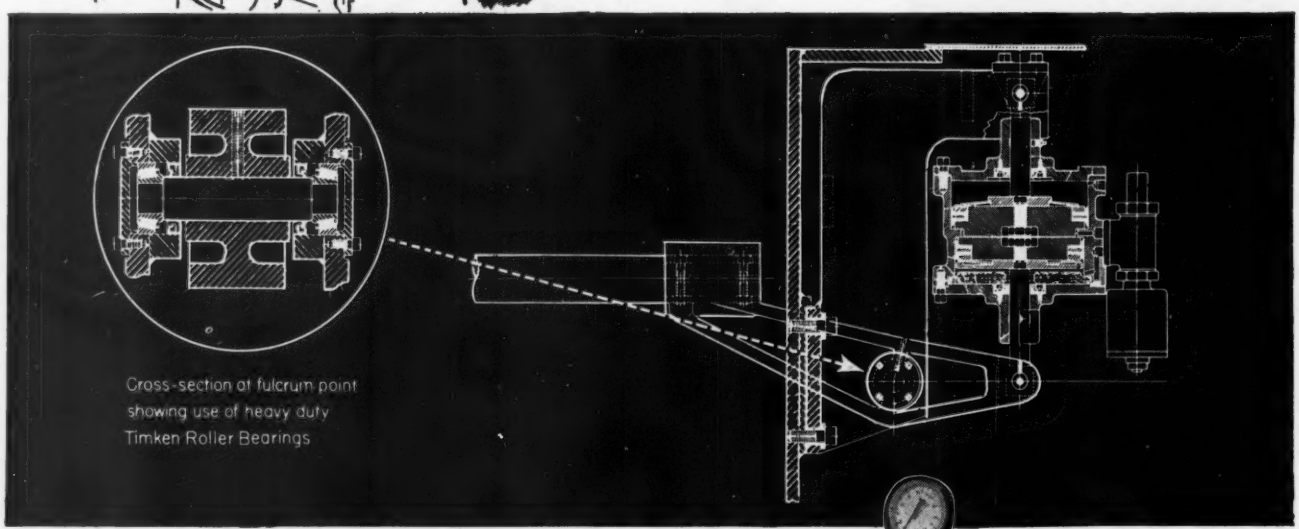
BUY MORE WAR BONDS

THE RYBOLT HEATER COMPANY

615 MILLER STREET ★ ASHLAND, OHIO

heavy duty *Roller Bearings* on this spotwelder mean:

* LESS MAINTENANCE
* SMOOTH ACTION
* NO SIDE PLAY



Cross-section at fulcrum point showing use of heavy duty Timken Roller Bearings

SCIAKY has built into this "small but mighty" rocker arm welder a wealth of features formerly only employed on heavy duty units. The result is a sturdy, accurate, fast machine, perfectly designed for the high quality production welding of light gauge metals.

Heavy duty Timken Roller Bearings at the fulcrum point eliminate wear . . . provide smooth action at maximum pressure. Rubber bumper within the pressure cylinder permits smooth return. Unit is entirely self-contained with controls mounted on a hinged cabinet, convenient to operator.

The machine, type PMCR.0-1 is rated 30 KVA at 100% duty cycle, 50 KVA at 50% duty cycle. Capacity on clean mild steel: up to two thicknesses of .080"; stainless steel up to .040". Speed on two thicknesses of .032" pickled mild steel is 180 spots per minute.

For a more detailed description, write for bulletin 112-A

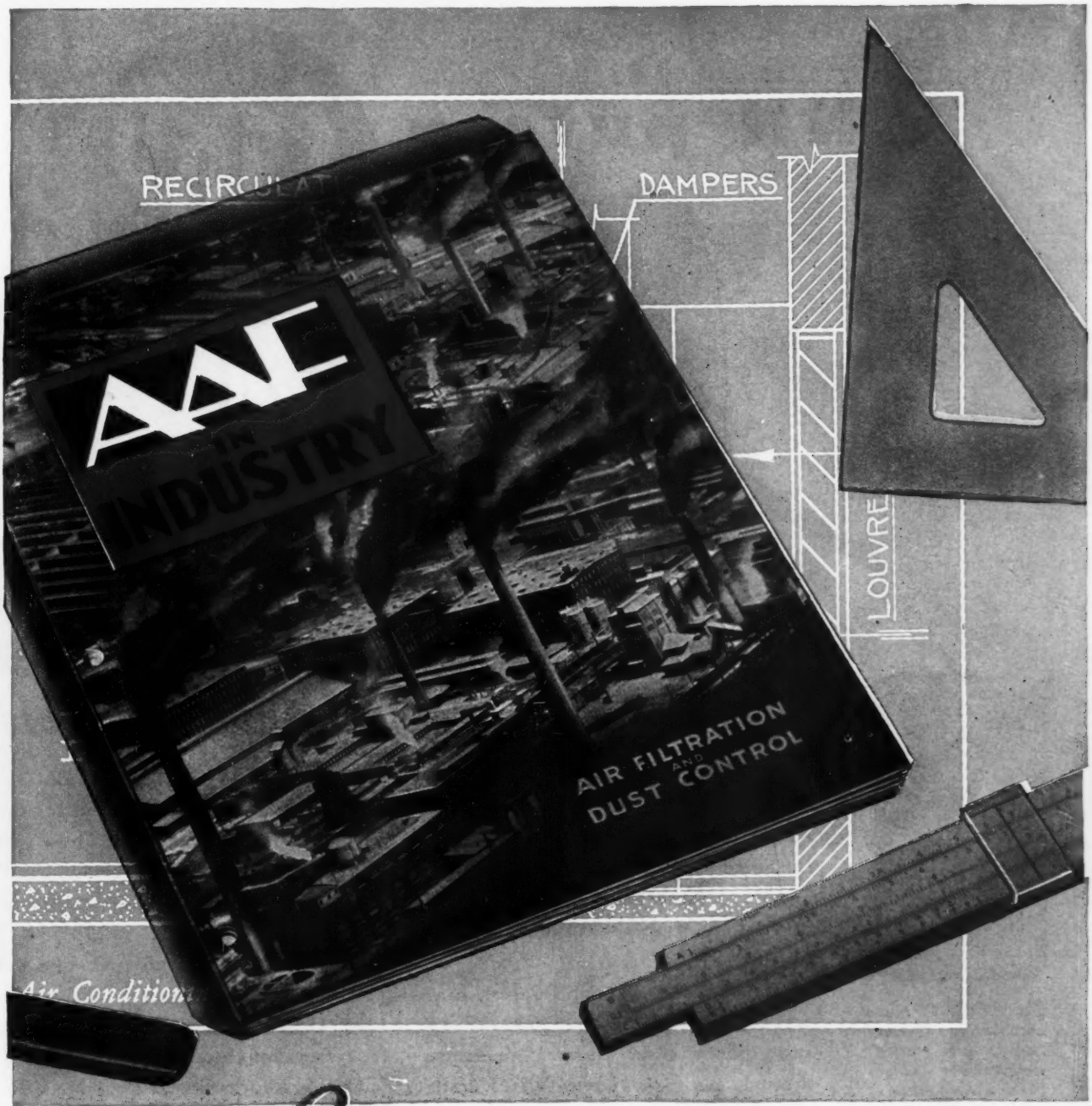
SCIAKY BROS.

Manufacturers of a Complete Line of AC and DC Electric Resistance Welding Equipment

4915 West 67th Street, Chicago 38, Ill.

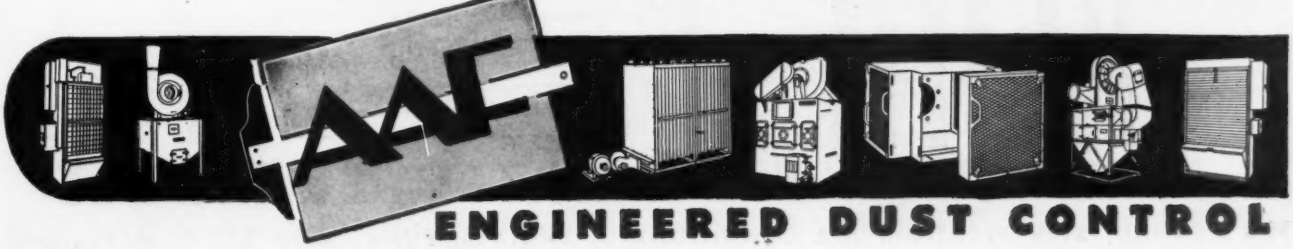
In England: Sciaky Electric Welding Machines, Ltd., London

Branch offices in Detroit and Los Angeles



Just released . . .

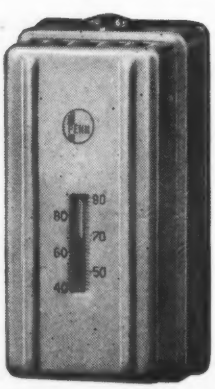
YOURS FOR THE ASKING—34 pages packed full of valuable information on the control of atmospheric and process dusts, including engineering data. Write today American Air Filter Company, Inc., 326 Central Ave., Louisville 8, Ky. *In Canada: Darling Bros., Ltd., Montreal.*



PENN puts a

to chilling and overheating

with thermostatic Draftender controls



TEMTROL, the heat-anticipating thermostat, actually "senses" temperature changes before they occur, holds room temperature at desired setting to provide true heating comfort with less fuel.

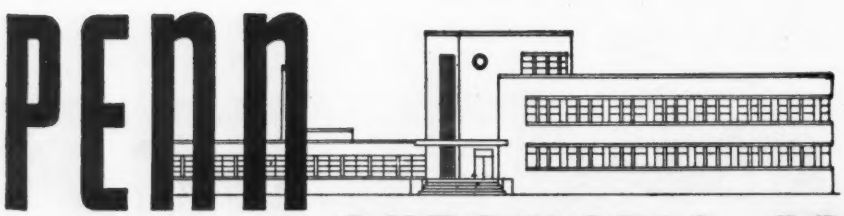
Chilling and overheating, so common in hand-fired heating plants, need plague the home owner no more. PENN has put a stop to these fuel-wasting "ups and downs"—and opened a ready market for you!

The PENN Draftender Control, now available *without consumer priorities,* assures more even room temperature through automatic regulation of drafts . . . provides *more heat, better heat,* with *less fuel.* Draftender is easily and quickly installed on *any* hand-fired plant, be it warm air, hot water or steam.

For use in conjunction with this sturdy damper motor, PENN offers Temtrol, the heat-anticipating thermostat. These two work as a team to bring owners of hand-fired jobs many of the joys of automatic heating systems.

Remember, there's no time like the present for quick sales in the fuel-saving line. Order Draftender Control Sets *today* from your local wholesaler!

Further information is available without cost from *Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th Street, New York 16, U. S. A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

Rudy

employees and management are honored to announce that the Army-Navy "E" Award for excellence in war production was made on Tuesday, October thirty first, nineteen hundred and forty four.

RUDY FURNACE COMPANY • DOWAGIAC, MICH.

EVEN FINER RUDY PRODUCTS FOR THE WORLD OF TOMORROW

TOMORROW'S KITCHEN

WILL BE A BETTER KITCHEN

IF EQUIPPED WITH

ROUND OAK APPLIANCES

. 1871-1944

ROUND OAK'S

73rd Anniversary

BUY ANOTHER WAR BOND TODAY!

ROUND OAK

HEATING EQUIPMENT

KITCHEN APPLIANCES

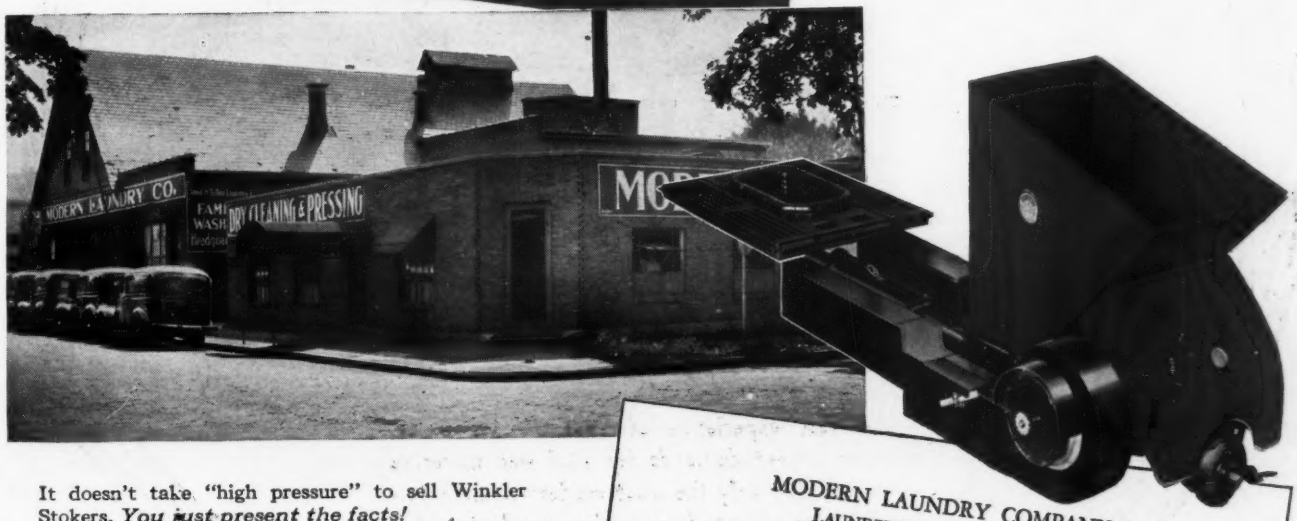
ROUND OAK COMPANY • DOWAGIAC, MICHIGAN

CAN YOU SELL A DEAL LIKE THIS!

OVER 100% CASH DIVIDEND

TO THE OWNER OF THIS WINKLER STOKER

The letter below shows why Winkler Distributors find it easy to convince prospects that a Winkler Stoker is not an expense but AN AMAZINGLY PROFITABLE INVESTMENT!



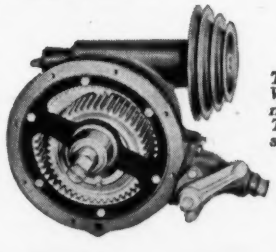
It doesn't take "high pressure" to sell Winkler Stokers. *You just present the facts!*

With evidence like the letter reproduced here, it's easy to show a prospect that he isn't *spending* money, but *making* money! *Who couldn't sell a deal like this!*

Winkler Stokers are alive with order-closing features. It is the only stoker, for example, with *extra power* transmission . . . and full protection against overload *without need for a shear pin!*

Winkler Stokers not only have superior mechanical features and outstanding economy records, but Winkler Distributors are carefully trained in how to present them most effectively. Holders of the Winkler Franchise are started off with the Winkler Basic Business Set-up . . . instructed in all the fine points of successful stoker merchandising . . . and have participating rights in the Winkler Two-for-One Advertising Bonus Plan.

Aggressive, hard-hitting business men are invited to ask for full information on how to obtain a Winkler Franchise.



This is the famous Winkler fully automatic "Inter-plan" Transmission—no shear pin needed!

MODERN LAUNDRY COMPANY, INC.
LAUNDERERS AND DRY CLEANERS
502-512 South Nebraska Street
PHONE 68
MARION, INDIANA

U. S. Machine Corporation
Lebanon, Indiana

Gentlemen:

In answer to your inquiry as to the satisfaction given by our Winkler Stoker, I'll let the following facts speak for themselves.

In 1936 we converted from hand-firing by installing a No. 75 Hopper Model Winkler Stoker in our 125 H.P. high pressure boiler. The records indicate that the conversion to stoker firing has enabled us to operate at a saving of about 25% in coal tonnage.

This amounts to 20 tons per month, which at current coal prices means an annual saving of $1680.

Coal savings are only a part of the actual cash dividends we are receiving. When hand-firing, we frequently had to close down for a half-hour or so because of low steam pressure, thereby keeping eight people on the flat work ironers idle. The cost of this lost time totaled up to an appreciable sum in a year's time. Now our required 75 lbs. pressure is maintained without any trouble.

The automatic operation of the stoker gives our fireman plenty of time for maintenance and other work about the plant - another saving in labor costs. Maintenance on the stoker itself has been negligible.

When hand-firing we also had complaints about smoke, a headache completely cured since converting to stoker firing.

Viewed from an investment angle, the cash returns from our Winkler Stoker are almost incredible. The stoker cost $1175, which means that the yearly dividends represented by savings on coal alone - not to mention the savings in labor cost - are well over 100%. I wish that all of my investments were as secure and profitable.

I think that from the foregoing, you will see that we are more than pleased with our Winkler Stoker.

Yours very truly,

MODERN LAUNDRY COMPANY, INC.

Bert G. Moore, Sec. & Treas.

WINKLER

fully automatic STOKERS

U. S. MACHINE CORPORATION • LEBANON, IND.

Facilities

The vast experience of Luxaire — gained in meeting urgent demands for vital war materials — proves that only the most modern manufacturing facilities can produce modern products which meet the demand of modern markets.

At the new, greater Luxaire plant, skilled workers have the help and benefit of the most modern manufacturing facilities — facilities that produce better products in less time at lower costs.

Luxaire is keeping one step ahead by adding means and methods that will in any way facilitate the future production of warm air heating and air conditioning units.

Luxaire

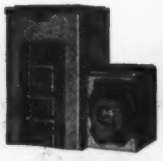
THE C. A. OLSEN MANUFACTURING CO., ELYRIA, OHIO

THE PRE-WAR LINE OF LUXAIRE WARM AIR HEATING AND AIR CONDITIONING UNITS FOR COAL, GAS, OIL

Series 600 Coal Fired Steel Furnace

Series C Coal Fired Cast Furnace

Series 700 Coal Fired Gravity Furnace



Series AC-700 Coal Fired Air Conditioning Unit

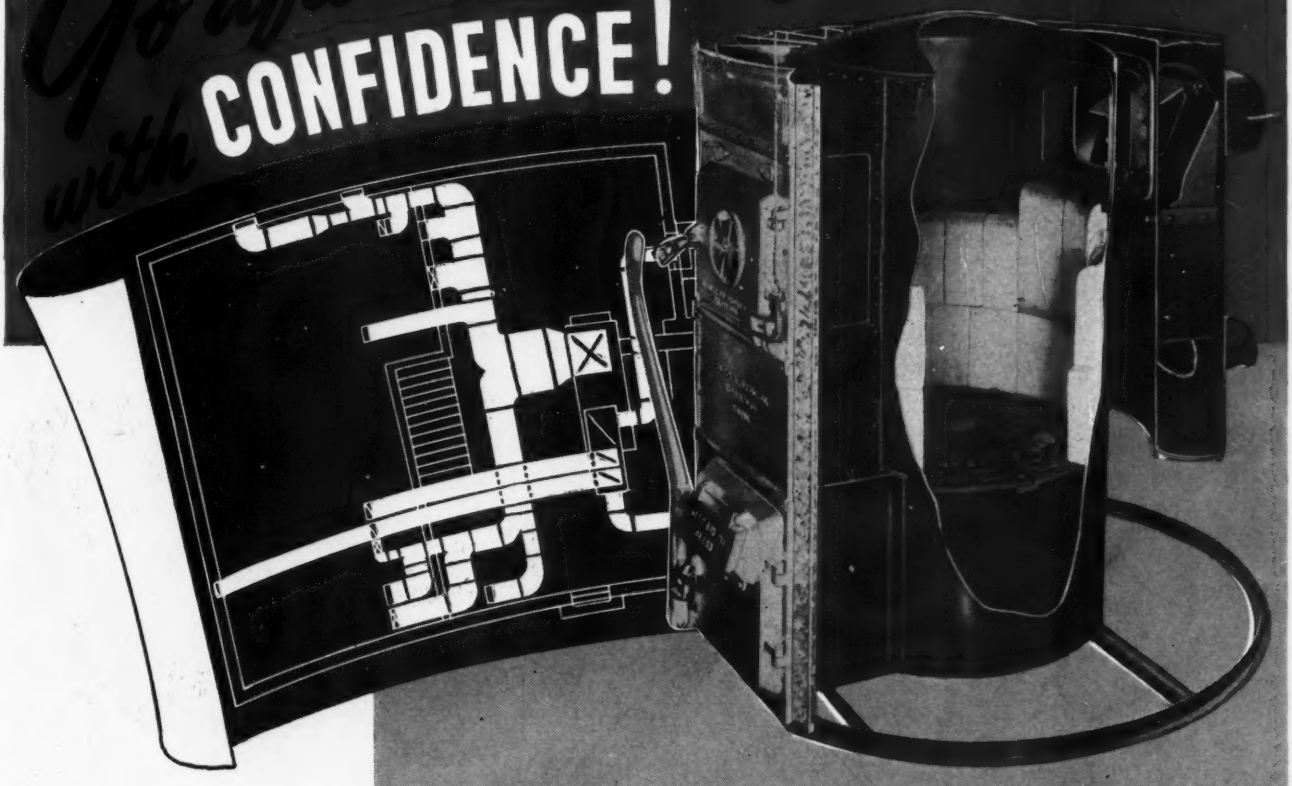
Series A Gas Fired Air Conditioning Unit

Series G Gas Fired Gravity Unit

Series H Gas Utility Air Conditioning Unit

Series 8000 Oil Burning Air Conditioning Unit

Go after the tough jobs
with CONFIDENCE!



HALL-NEAL'S REGISTERED HEATING ENGINEERS HELP YOU SELL *VICTOR FURNACES RIGHT!*

HALL-NEAL HEATING ENGINEERING DEPT.

1. A staff of six heating engineers headed by Guy A. Voorhees.
2. Every one of the six has had experience as a heating contractor. They know your problems.
3. Each and every one of them has installed furnaces; practical experience . . . not just theory.
4. Engineering advice and plans sent to you are practical, workable and possible to carry out.
5. Each heating plan sent to you is individually designed for your particular job.
6. No matter what your question or problem is, you receive an authoritative answer from HALL-NEAL.

SELL THE
"VICTOR LINE"
Furnaces—Oil Burners—Stokers—Gas Burners—Blowers—Accessories

Hall-Neal dealers go after the tough jobs fully equipped to sell AND INSTALL them at a profit. Some jobs do call for specialized engineering study and when that happens—in order to get a fool-proof installation, meet competition and still make a profit—both the engineering and sales departments of the "VICTOR" line are at your service. Whenever you need help . . . you get it. We all know that present restrictions on sizes and models make for difficulties at this time . . . but that only makes more valuable to our dealers the assistance HALL-NEAL freely gives them. There is NO substitute for experience and the "VICTOR" line has been famous for its quality, craftsmanship and delivery of constant satisfaction since 1890.

Your inquiry is invited.

Write HALL-NEAL FURNACE COMPANY for full details of Dealer Engineering Cooperation.

NAME .....

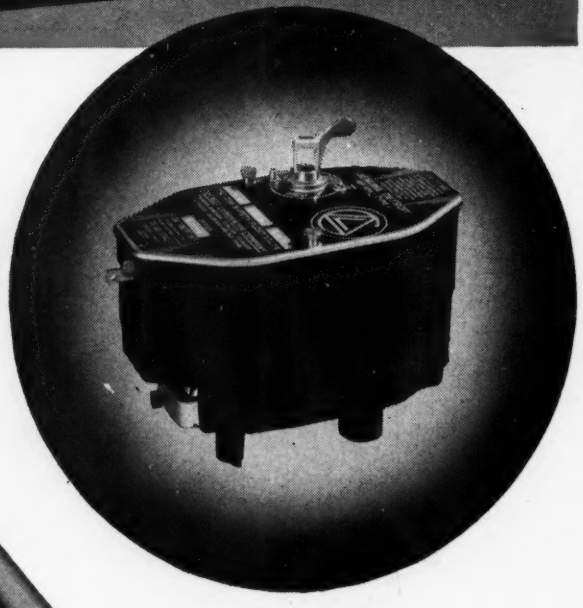
ADDRESS .....

CITY ..... STATE .....

HALL-NEAL FURNACE CO.

1326 N. CAPITOL AVE. **INDIANAPOLIS 7, INDIANA**

TOOL KIT
For Servicing "DL" FLOAT VALVES



That's right! A screwdriver is the only tool you need to disassemble and clean a "DL" Float Valve.

Simplicity of design and ease of servicing have made "DL" Float Valves an outstanding favorite in the oil heater field.

Many thousands of these reliable valves are rendering fine service on space heaters, water heaters, furnaces and ranges, etc., in homes throughout the nation, and in addition are serving our armed forces on tent heaters, truck heaters, ranges and cook stoves all over the world.

When you are selecting a line of oil heaters for your postwar marketing plans, you'll want something that an owner can take care of himself—something that will require a minimum of service.

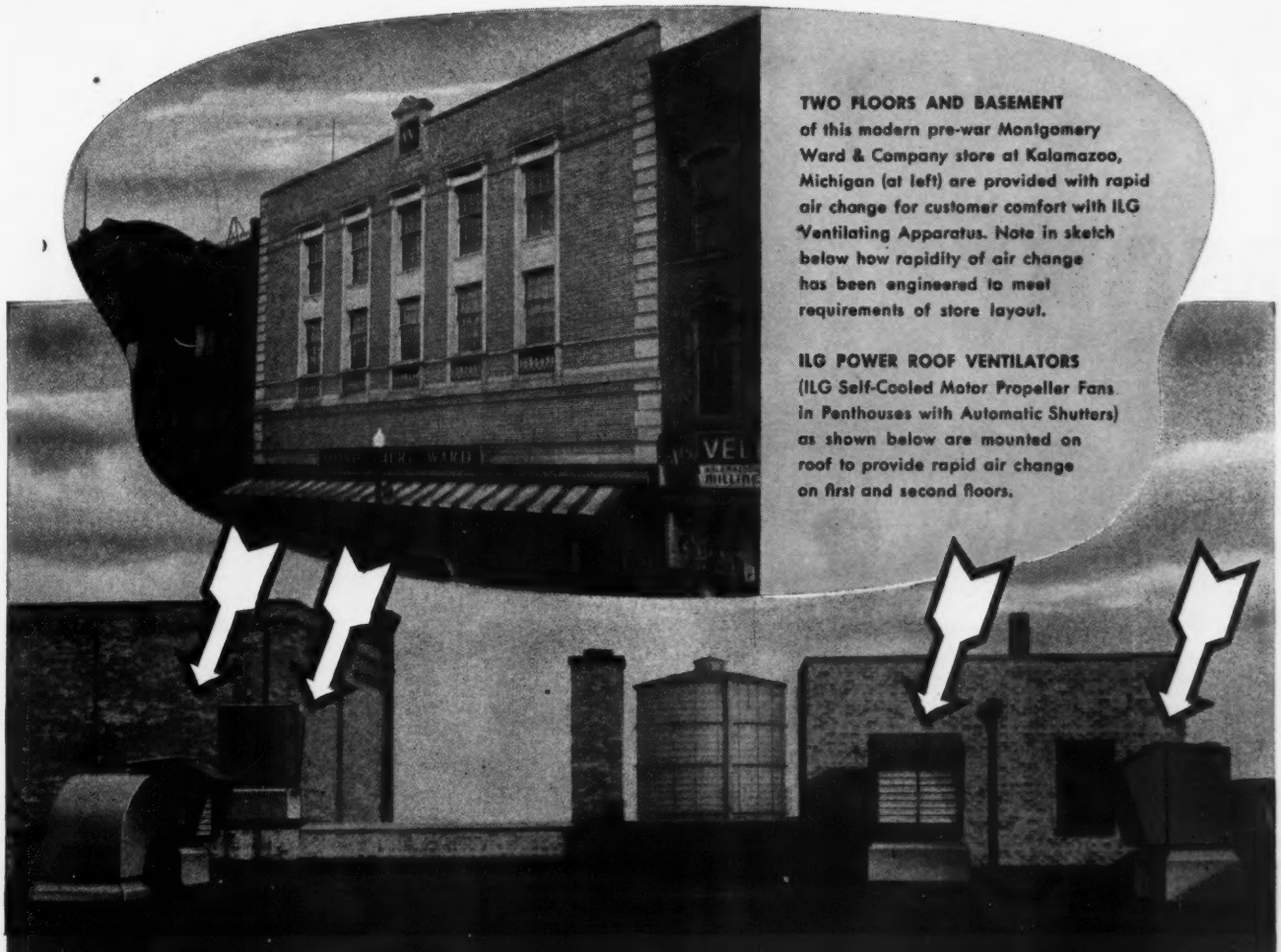
That's why you should insist upon "DL" equipped oil heaters.

DETROIT LUBRICATOR COMPANY *General Offices:* DETROIT 8, MICHIGAN

Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators.

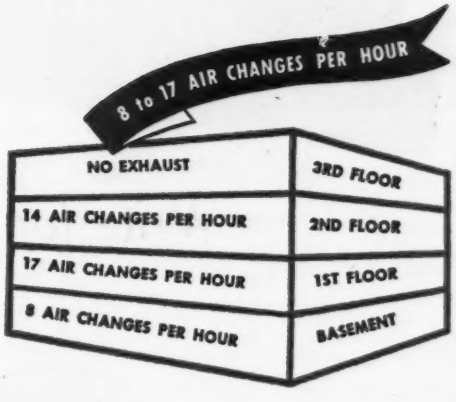


TWO FLOORS AND BASEMENT of this modern pre-war Montgomery Ward & Company store at Kalamazoo, Michigan (at left) are provided with rapid air change for customer comfort with ILG Ventilating Apparatus. Note in sketch below how rapidity of air change has been engineered to meet requirements of store layout.

ILG POWER ROOF VENTILATORS (ILG Self-Cooled Motor Propeller Fans in Penthouses with Automatic Shutters) as shown below are mounted on roof to provide rapid air change on first and second floors.

CUSTOMERS LINGER LONGER DUE TO RAPID AIR CHANGE!

Swift removal of excessive heat, smoke and odors ... replacement with fresh, vitalized air for greatly improved shopping and working conditions is accomplished in this attractive store at comparatively low cost, with a minimum of repair and maintenance trouble and expense. One ILG B-60 Direct-Connected Blower for the basement and four ILG Power Roof Ventilators (two 42"; two 48") on the roof provide 8 to 17 air changes per hour throughout the store, except for storage space on third floor. Employees are more alert, evidence less fatigue... customers enjoy the fresh, inviting atmosphere. If you are now faced with ventilating or heating problems in planning for post-war buildings, phone nearby ILG Branch Office (consult classified directory) or send us details today!



ILG ELECTRIC VENTILATING CO., CHICAGO 41, ILL.

2871 NORTH CRAWFORD AVENUE

Offices in 38 Principal Cities

***WANTED:* GRADUATE ENGINEERS**

for expansion of ILG Branch Offices, also Research and Engineering Depts. Exceptional opportunities now and post-war for graduates of accredited technical schools and colleges. Write giving full details of educational background, business experience, health, age, marital status, etc.

ARMY E NAVY

KEEP YOUR EYE ON ILG

ILG

VITALIZED VENTILATION

AND AIR CONDITIONING

Cut Installation Hours
WITH
MONCRIEF FITTINGS!

DIE STAMPED·MACHINE MADE!

CUTS INSTALLATION COSTS!

BEST BY INSTALLATION TEST!

MONCRIEF · WARM AIR PIPE AND FITTINGS

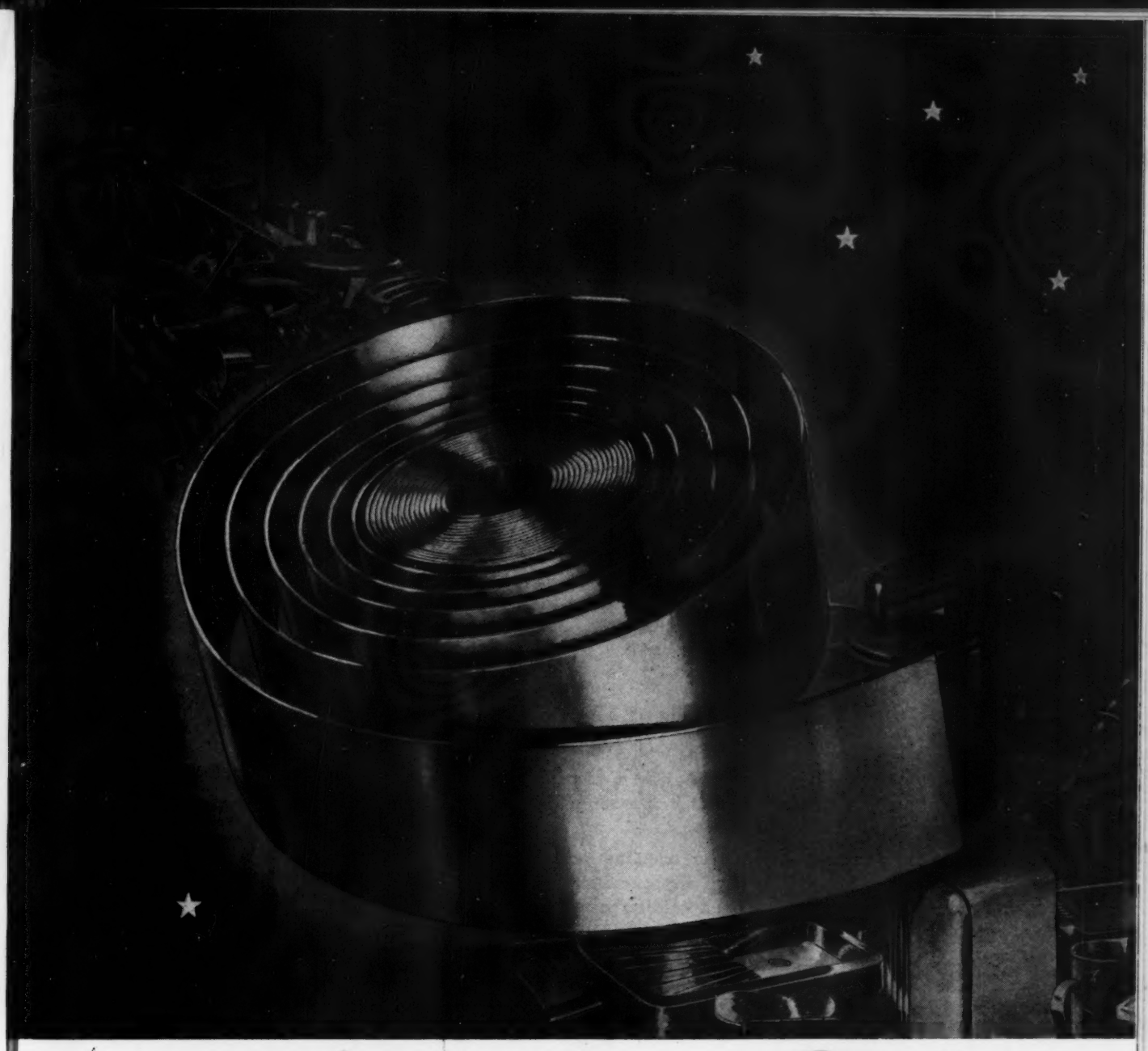
Write for Catalog **GF-44**

WARM AIR
FURNACES
FURNACE PIPE
AND FITTINGS

MONCRIEF
SINCE 1895

AIR CONDITIONING
SYSTEMS FOR
COAL . . .
GAS . . . OIL

THE HENRY FURNACE CO. **MEDINA, OHIO**



For the infinite uses of Stainless—

Superior's STAINLESS STEEL Strip

Take mental stock of your post-war metal products . . . and pause a moment, to review the many points at which Stainless Steel could add vital sales appeal: the beauty of undimming luster, the practical values of strength, resistance to wear and corrosion, long life. Consider then the prime production advantages of Superior's Stainless Steel Strip . . . long coils of ever-bright metal, in specified analyses, thicknesses and widths, ready for your fabricating line. Like to know more about this product in relation to your projected applications? Ask us, we're strip steel specialists!

Superior Steel
CORPORATION
CARNEGIE • PENNSYLVANIA

RECONVERT for peacetime profits!

See how smoothly Dux-Sulation applies to irregular shapes on this typical job.

Economical Production depends on how completely and efficiently you reconvert.

In war production, Speed is the prime factor—cost is secondary. Looking to the future, you know economies and operating expenses will determine your competitive peace time profits.

DUX-SULATION is of prime importance in effecting real savings, so when you are making those much needed improvements and changes in your duct lines, such as rerouting and adding new lines, etc., be sure to cover with asbestos protected DUX-SULATION the all-purpose insulation.

Get the maximum efficiency out of your office and plant NOW when it is most needed by installing DUX-SULATION to really complete your reconversion job.

SAVES FUEL DOLLARS

STOPS SOUND TRAVEL

BETTER TEMPERATURE CONTROL

LOW COST -- LONG LIFE

DUX-SULATION prevents 75% of your present heat loss (K factor .27 B.T.U.) and not only saves fuel, but quiets NOISES, absorbing 70% of sound. Also prevents condensation, duct sweating and duct rust.

DUX-SULATION is safe, with asbestos protection built in, has low frictional resistance, has moisture proof surface—is mildew proof treated—and will not chip or flake.

Made especially for Air Conditioning, Ventilating and Warm Air Industries

DUX-SULATION has just the right thickness (½ in.) for most jobs and is convenient to handle in stock or on the job. The roll contains 100 square feet and is easy to apply without waste. Can be applied on inside or outside of round or rectangular ducts.

DUX-SULATION is inexpensive to use and is built to last and stand hard use—improves the general appearance of your plant and it requires no painting.

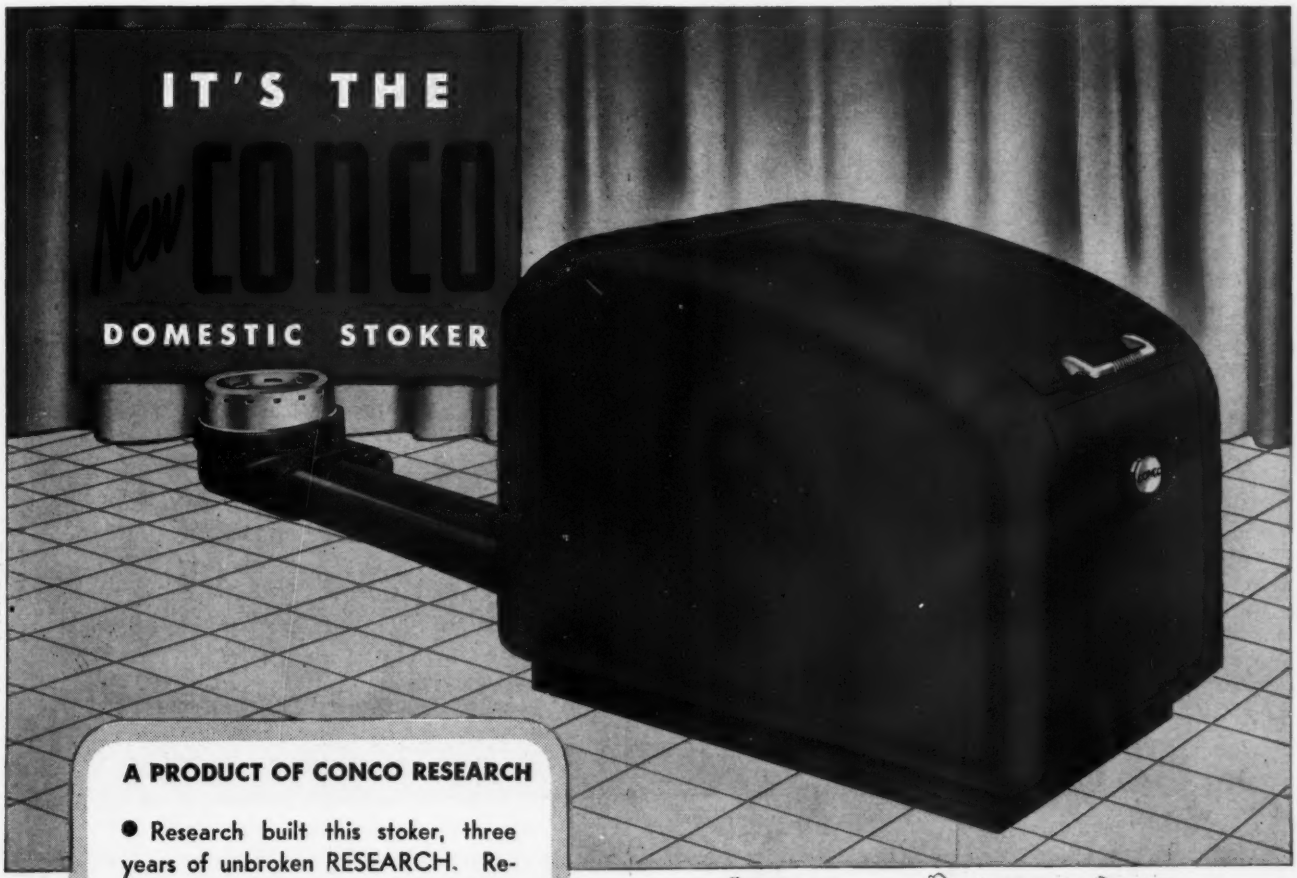
DUX-SULATION is now available for immediate delivery . . . 1 roll or 1000. It comes complete . . . Everything necessary (adhesive and binding tape) for its simple application is included in each shipment . . . Nothing else to buy . . . No lugs, screws, bolts, or wire.

Write today for your copy of our valuable book No. 404 on correct duct insulation.

GRANT WILSON, INC.

141 WEST JACKSON BLVD., CHICAGO 4, ILLINOIS

Specify asbestos protected Dux-Sulation on all your duct work for better performance.



A PRODUCT OF CONCO RESEARCH

● Research built this stoker, three years of unbroken RESEARCH. Research dictated the ENGINEERING — retort of one piece construction, designed to provide a smooth even flow of fuel to the fire. No pin shears in this stoker, for there is no shear pin; the stoker stops automatically until any obstruction is removed. A twist of the wrist selects the right coal feed, adapts this unit to the specific fuel being used; correct belt tension is automatically maintained. Here is a compact, powerful, silent stoker. Here is a stoker years ahead of the field in engineering and in SALES APPEAL.

ARMY E NAVY

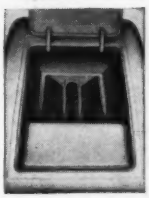
CONCO

DIVISION OF H. D. CONKEY & CO.

MENDOTA, ILLINOIS

Designed to appeal to the eye as well as to the critical mind. Not full of "gadgets" to make talking points, but built on solid research. A simple, logical design that will *deliver* what you *sell* — clean, economical, automatic heat. It's a real winner!

IT'S NEW



VENTILATED, LARGER HOPPER

Heavy gauge rust-resisting steel welded into a single streamlined unit. Roomy door dust and air-tight. Forced-ventilation by air jet eliminates back gassing . . . protects against corrosion.

IT'S NEW

ONE-PIECE RETORT

Of heat-resisting alloy iron. Smooth contour allows easy fuel flow. Self-cleaning tuyere ports distribute air evenly throughout fuel bed; give maximum cooling. Costlier to build than the sectional type.

IT'S NEW

INTER-PLANETARY TRANSMISSION

Eight teeth in constant contact distribute load. Ball bearing mounting. Internal gears work silently, smoothly in a constant flood of oil. Hardened and polished worm reduction. A highly efficient unit.

IT'S NEW

AUTOMATIC AIR METER

Automatically adjusts air flow to meet changing fuel bed requirements. Increases combustion efficiency. Extremely flexible in adjustment to successfully burn a wide selection of coals.

"Since 1866"

Postwar Preview

OF

WEIR-MEYER Modern Heat

WEIR-MEYER

gives you

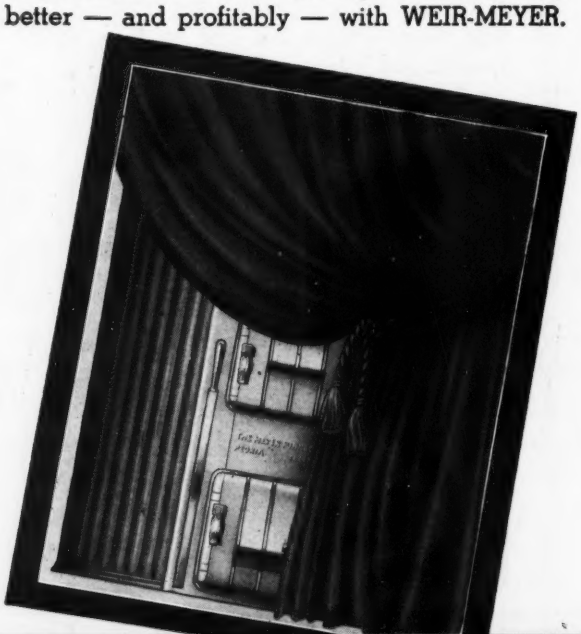
MORE TO SELL!

Years before the turn of the century, WEIR-MEYER experience produced heating equipment unequalled. Many WEIR furnaces are still giving perfect satisfaction after *more than fifty years* of continuous service. That's a sales story only WEIR-MEYER dealers can tell.

During all these years, WEIR-MEYER experience has broadened. Refinements and improvements have constantly kept WEIR-MEYER the name that means Modern Heat.

Postwar WEIR-MEYER equipment is designed to hold undisputed leadership. Lessons of quality mass production for Military and other war needs mean that huge quantities of finer heating equipment—WEIR-MEYER equipment —will be available. More dealers and distributors can have WEIR-MEYER.

If you want to sell the line that's head and shoulders above competition inquire *now* about WEIR-MEYER. You serve your community better — and profitably — with WEIR-MEYER.



THE

MEYER FURNACE

COMPANY

manufacturers of

WEIR and MEYER FURNACES
— AIR CONDITIONERS
FOR
COAL - OIL - GAS
Peoria 2, Illinois

WEIR-MEYER MEANS *Modern Heat*

Allen "flies" the Dust Load out of this Foundry Building

...a Typical Assignment for Allen Engineers

When this vast building of the Clover Foundry Company at Muskegon, Michigan was originally built it was provided generously with roof ventilators. Subsequent operation and the war time urgency for pushing up production of the plant's specialty —cast iron piston rings—proved the existing ventilation inadequate to maintain a working atmosphere conducive to high operating efficiency and worker health. The Clover management turned to Allen and Allen turned to the scientific instruments that eliminate guess work and made a true psychrometric survey. Much of the former equipment came off the roof and up went six Allen Type "H" Roof Fans—four 60A units over the shake out area; one 48A unit over the sand handling equipment; and one 48A unit over the cupola floor.

Result: Atmospheric dust count was reduced to a point well within the limits necessary for the maintenance of an hygienic atmosphere. Management and working personnel were equally pleased with Allen results. Important production schedules could be maintained.

There are two reasons why industrial management in many similar cases has found it easy and profitable to work with Allen engineers. Allen men have the right attitude toward ventilating problems. They look with complete realism on the problem and are free to recommend the right gravity or power equipment to *get results* because the Allen line covers both fields. We are always willing to talk over your ventilating problem whether it is a run-of-the-mine job or a very unusual one. The Allen Corporation, 9751 Erwin Avenue, Detroit 13, Michigan.

THE *Allen* CORPORATION

ENGINEERED VENTILATION FOR INDUSTRY

For The Best Publish

AMERICAN ARTISAN w

Not prizes, but the continued acceptance, respect and reader interest of its subscribers are what a good publication constantly strives for. Nevertheless, it is pleasant to have one's editorial effort judged outstanding, and to be awarded a first place in a national editorial achievement contest.

Such recognition has recently been won by AMERICAN ARTISAN, which received first award among business papers for the best published research in the twelve months ending July, 1944. Note reproduction of plaque at right.

This editorial achievement contest is conducted annually by Industrial Marketing. The judges are eminent and impartial authorities in the advertising profession. AMERICAN ARTISAN's series of articles on "The Equitable Distribution of 200,000 Warm Air Replacement Furnaces," appearing in our October, 1943 to June, 1944 issues, won top honors in the "best published research division" of the 1944 contest — a competition entered by over 300 business papers serving all types of fields.

These AMERICAN ARTISAN articles consisted, first, of an estimate (based on an original survey of the field) of the critical needs of the entire country for replacement furnaces. Then, when the War Production Board permitted the manufacture of 200,000 furnaces, they included a plan for the equitable distribution of such furnaces. Quotas were calculated down to the vital needs of each of the more than 3,000 counties.

But even more significant than this national recognition of AMERICAN ARTISAN's service to its readers, its industry and to the public is the fact that AMERICAN ARTISAN is *first* in its field in key dealer circulation, and *first* in advertising volume. *Circulation and advertising leadership are only built upon a long record of outstanding editorial service.*

Another AMERICAN ARTISAN "first" is the Annual Directory Number started in January, 1934, and compiled fresh each year. This coming January Directory Issue will see the beginning of many a new schedule. It is always a "must" for a tell-all story from advertisers who have consistently used it year after year.

Postwar residential warm air heating, air conditioning and sheet metal indicate, according to estimates of the National Warm Air Heating and Air Conditioning Association, an annual market for 900,000 furnaces, 150,000 tons of sheet metal, 7,000,000 registers and grilles, 400,000 blowers, 1,350,000 control devices, and other related products in similar volumes. *The dealer-contractors who will handle the bulk of all this postwar business are present readers of AMERICAN ARTISAN.*

KEENEY PUBLISHIN

Air Conditioning Headquarters

lished Research

N Wins Top Honors!....

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le
of

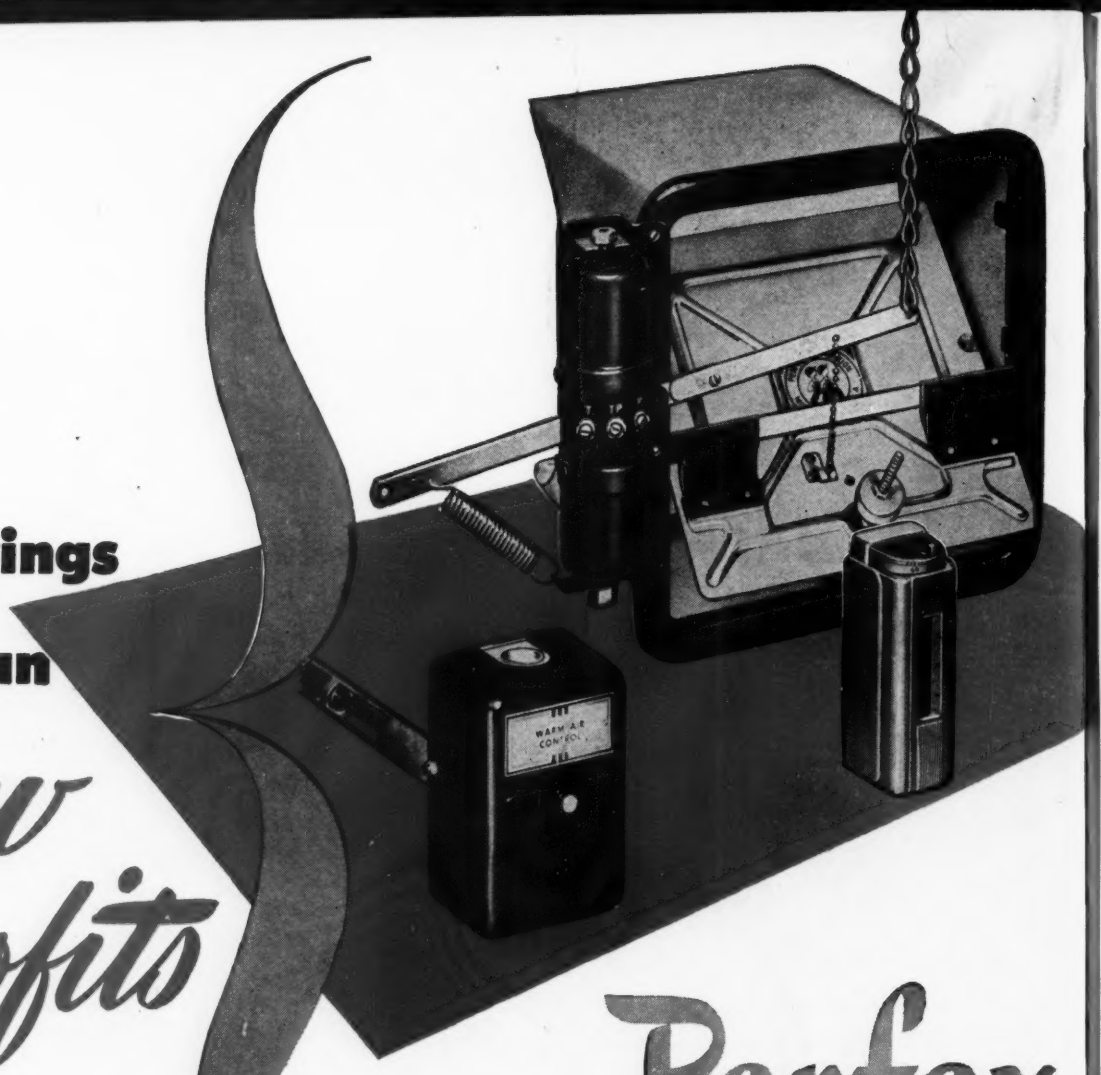
LISHING COMPANY

SIX NORTH MICHIGAN, CHICAGO

Also Publishers of Heating, Piping & Air Conditioning

lquarters

NOW fuel savings can mean *new profits*

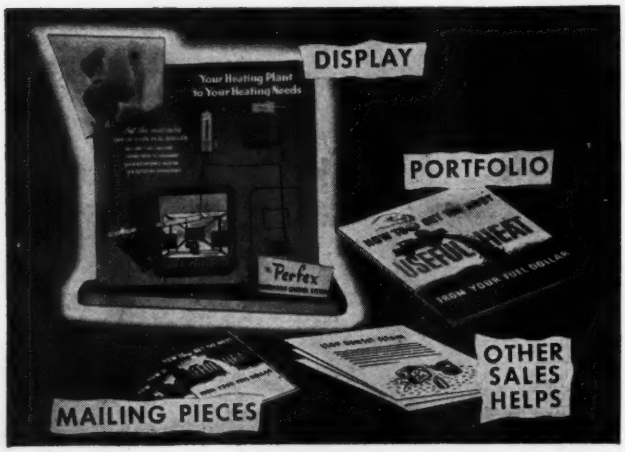


. . . FEATURE THE Perfex COMBUSTION CONTROL SYSTEM

■ Cash in on volume sales . . . built on the *salable* performance features of this new system . . . the *complete* set that brings top economy and convenience to hand-fired heating.

The *new* square Barometric Draft Control features non-stick, non-clog hinges. The Thermo-Draulic Damper Operator is *attached*, forming one unit. The Magic Dial Thermostat responds instantly to changes in room temperature . . . and the Limit Control *automatically* safeguards against overheating.

Those and other features help you sell at a *fair price.* Not just a "regulator set" but a tuning system that keeps draft at a rate suited to building size, heating plant size, and fuel used. It's easy to install, will help you rebuild postwar prospects. SELL IT NOW!



PERFEX HELPS YOU SELL, TOO

This sales-making kit includes a colorful, sturdy display, wired for actual operation. *Show* your prospects the controls in action. There's material for local papers and radio, a sales letter . . . a portfolio featuring a rapid-fire review of the system, features, and a miniature of the portfolio prepared as a mailing piece. Write today or send coupon for complete information.

Yes I want to cash in on controls profits now. Send details on the new Perfex Combustion Control System.

Name_____

Address_____

City_____ State_____

Perfex CORPORATION

420 W. Oklahoma Ave., Milwaukee 7, Wis.

Fuel-Saving Starts With CONTROL

Copper saves millions in Building upkeep

COPPER is traditional in the building that is erected to endure . . . whether it be a skyscraper, a public building or a modest home.

Copper roofs protect the United States Capitol and the Capitols of 21 states! And everyone is familiar with architectural bronze, the metal that distinguishes the store fronts and entrances of eight out of ten buildings along New York's famed Fifth Avenue from 42nd to 57th Street.

Less obvious in application, but even more important to such buildings, is the long-lasting protection copper and its alloys provide in so many places, both inside and out, where metals are exposed to rust or corrosion.

In small homes, too, the use of copper and brass is equally important. No other metal offers the homeowner so much as copper in assuring protection, convenience, comfort and low upkeep. Roofs, flashings, gutters, downspouts and insect screens that can never rust. Water lines of brass pipe . . . or copper tubes that cost, installed, little if any more than rustable pipe. Water heaters with tanks of non-rust Everdur* Metal. Solid brass and bronze hardware for beauty and endurance.

Building owners may *spend* a little more for copper and copper alloys, but in turn they will receive far greater value in lasting protection.

The skyline illustration above shows six of the many outstanding buildings rustproofed with Anaconda Metals. From left to right: The Russ Building, New York Central Building, RCA Building, Bank of Manhattan, Woolworth Tower and Fisher Building. Many millions of pounds of Copper, Brass and Bronze perform more than 50 distinct functions in these structures. 4412C

*Reg. U. S. Pat. Off.

THE AMERICAN BRASS COMPANY

Subsidiary of Anaconda Copper Mining Co.

General Offices: Waterbury 88, Conn.

In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

BUY WAR BONDS
. . . buy more to shorten the war

ANACONDA

Anaconda Copper & Brass

Only G-E dealers will enjoy this great sales advantage in tomorrow's busy heating market

IT will not require much "selling" after the war. For the public already knows about . . . *respects* . . . this sales advantage. And it's exclusive with distributors of G-E Automatic Heating Equipment.

It is, of course, the famed wartime research and engineering experience of General Electric. New knowledge that, in normal times, would have taken years to acquire, yet which G-E with its facilities for research was able to assemble, study and apply at war's tempo.

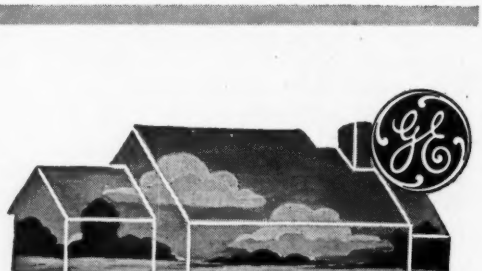
You'll appreciate what this can mean, profit-wise, when the General Electric heating units of postwar appear. They'll be quieter, more compact and efficient, easier to install . . . *and easier to sell!* In tomorrow's heating market, the dealer with the G-E franchise will have a decided jump on competition. *General Electric Company, Heating Division, Section 45311, Bloomfield, New Jersey.*

☆ BUY . . . and hold . . . WAR BONDS ☆

THE EXCLUSIVE G-E MOTOR COMPRESSOR— a revolutionary research development in prewar G-E heating units. Oil pump, fan, compressor, and motor mounted on one-piece shaft for permanent alignment. No gears, pulleys, or belts to cause trouble. Self-lubricating. Complete assembly spring-mounted, flexibly coupled, for quiet operation. Out of today's research will come other exclusive selling features . . . and new opportunities for G-E Heating equipment dealers.

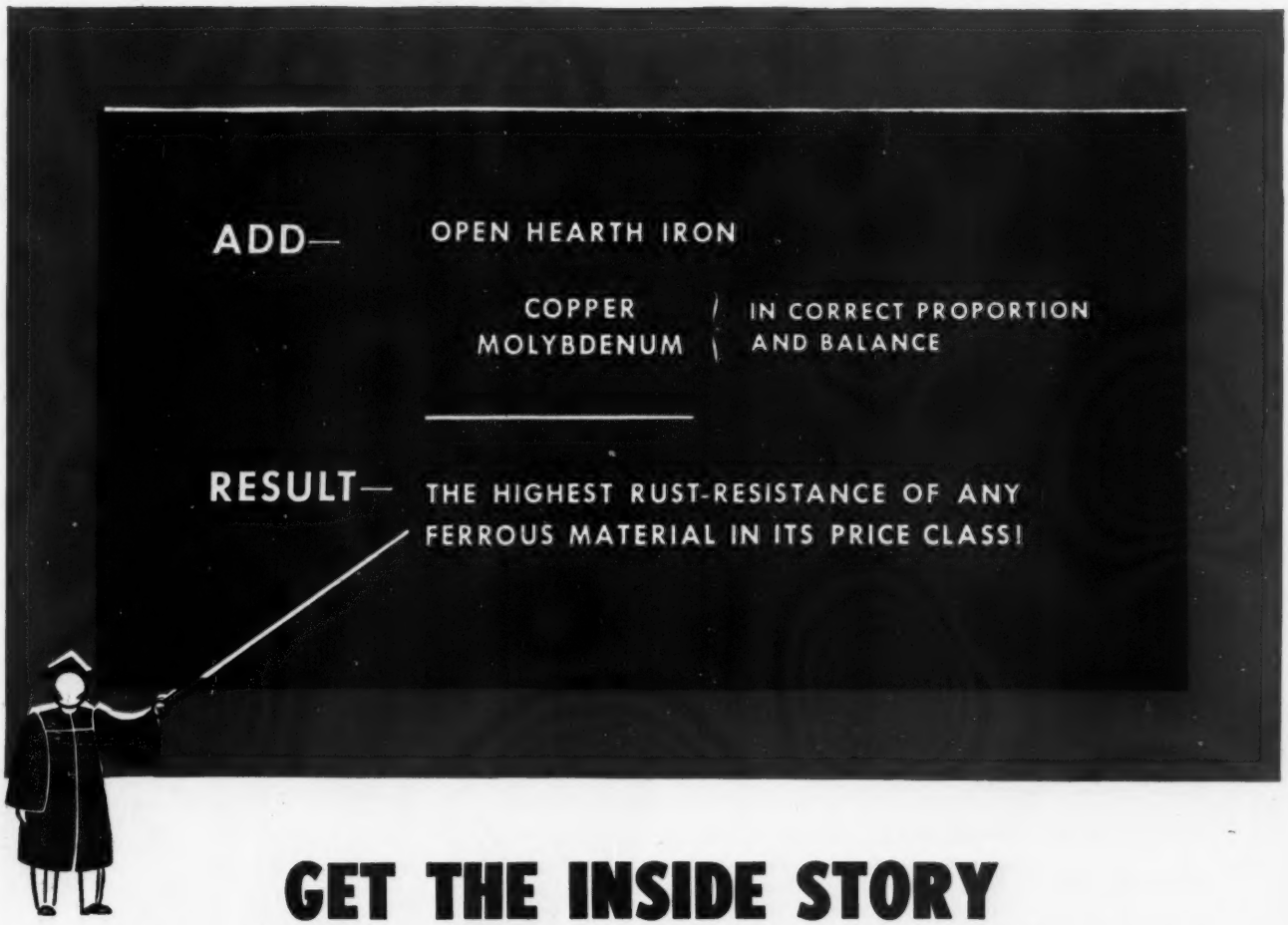
Automatic Heating by

GENERAL ELECTRIC



"CONTROLLED WEATHER"

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA," Sundays, 10 p. m., EWT, NBC..."THE WORLD TODAY" News, Every Weekday, 6:45 p. m., EWT, CBS



GET THE INSIDE STORY of Toncan Iron's high rust-resistance!

Sometimes it takes a war to reveal the hidden qualities of a peacetime product. And World War II is proving that Toncan Iron has something better in its rust-resistance.

It isn't the war performance of Toncan Iron that proves the point, but the fact that we had to suspend its production because we were not permitted to use the vital war materials that give Toncan Iron its extra protection from rust.

Here's the inside story. Toncan is an *alloyed* iron. It is made from highly-refined, open hearth iron which has fewer rust-inviting impurities. But *in addition,* it contains *twice as much copper* as copper-bearing steel—*and molybdenum* to improve the grain structure and make the copper most effective. And correct proportioning and careful processing give Toncan Iron a rust-resistance unequalled by other ferrous material in its price class—a reputation for longer service.

A look inside also shows you the reason for Toncan Iron's unusually high ductility—its easy workability. The highly purified iron has a lot to do with that. And the result is faster, better fabrication at lower cost.

Looking ahead we can see that our war experience in ferrous metal developments will mean a better Toncan Iron in the future. So, wait for it —watch for it. Follow its progress through your local Republic Toncan Iron Distributor.

But first, ask him, or write us, for the booklet "How Toncan Iron makes Money for Sheet Metal Contractors and Fabricators."

REPUBLIC STEEL CORPORATION

GENERAL OFFICES • CLEVELAND 1, OHIO

Berger Manufacturing Division • Culvert Division
Niles Steel Products Division • Steel and Tubes Division
Union Drawn Steel Division • Truscon Steel Company
Export Department: Chrysler Bldg., New York 17, N. Y.

Republic

REPUBLIC STEEL — PRODUCTION FOR VICTORY

TONCAN COPPER MOLYBDENUM IRON

Other Republic Products include Carbon, Alloy and Stainless Steels—Pipe, Sheets, Plates, Strip, Bars, Wire, Bolts and Nuts, Tubing

IT WEARS A LOT OF *Ribbons*

★ ASK our veterans returning from the far corners of the globe and you'll find that the CRESCENT WRENCH wears a lot of ribbons too. It has worked on everything from bulldozers to bombers ... on more than one occasion it has spelled the difference between getting back and getting "taken".

Someday, this famous Crescent Wrench will be back at work rebuilding for Peace. In the meantime, make the ones you have last. Available Crescent Spare Parts will keep them working.

ARMY E NAVY

CRESCENT TOOL COMPANY, JAMESTOWN, N.Y.

A Testimonial to the quality of

Weirton Galvanized Sheets

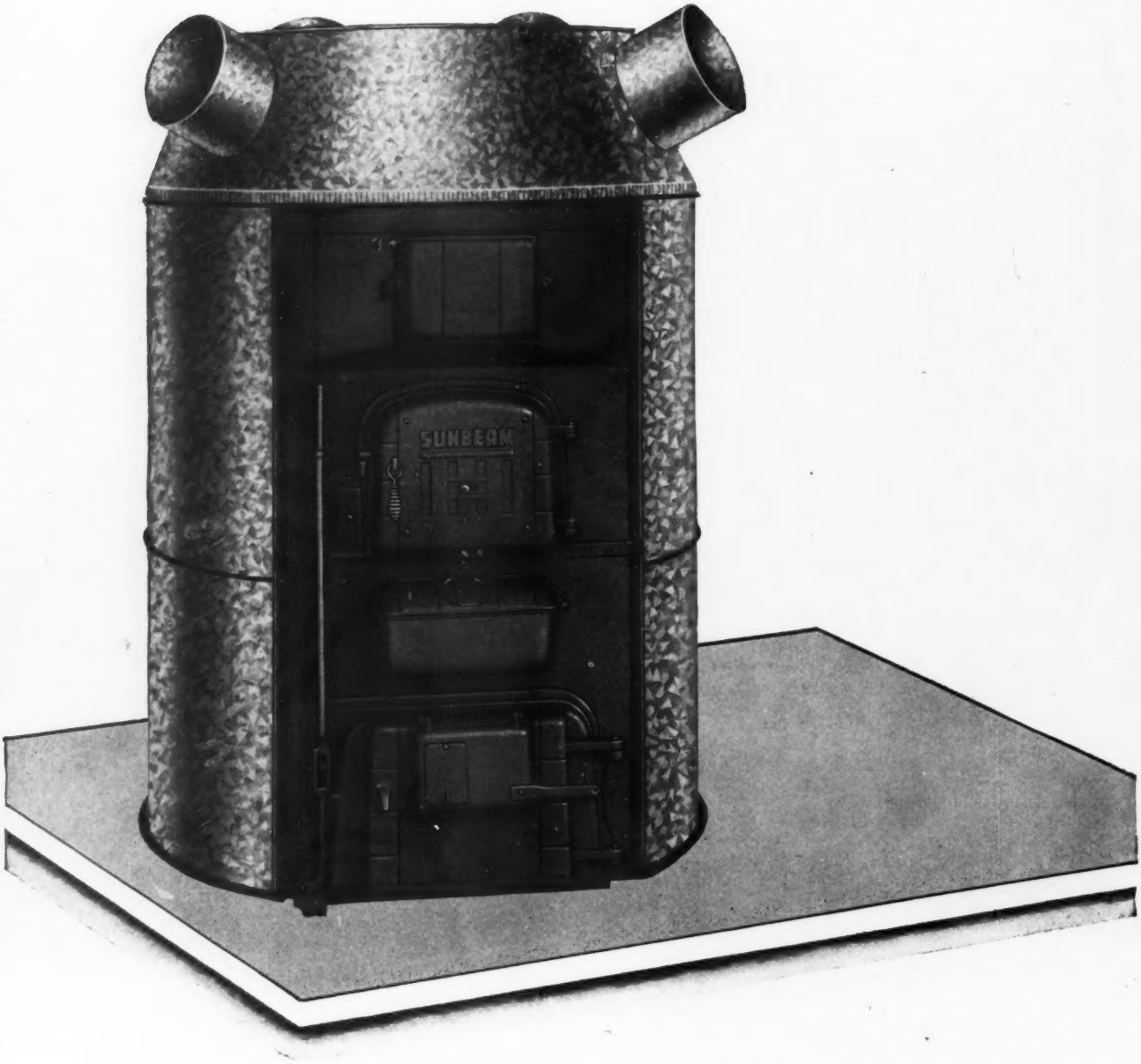
. . . . Those famous "Quonset" Huts that have demonstrated such remarkable service — under every climatic condition—under the most punishing usage . . . the majority of them—8 out of every 10 of them—are built with Weirton Galvanized Roofing and Siding . . . What better testimonial could be written on the ability of Weirton Galvanized Sheets to deliver superior service on farm and industrial structures?

WEIRTON STEEL CO.

WEIRTON, W. VA. *Sales Offices in Principal Cities*

Division of **NATIONAL STEEL CORPORATION** *Executive Offices, Pittsburgh, Pa.*

SUNBEAM



• Some day . . . soon we hope . . . this popular SUNBEAM Warm Air Furnace, as well as all other SUNBEAM Products, will again be available. Their manufacture will be resumed quickly and zealously as soon as the urgent demand for war production ceases. We look forward to the time when we can return to peacetime pursuits and renew our pleasant relations with our warm air customers.

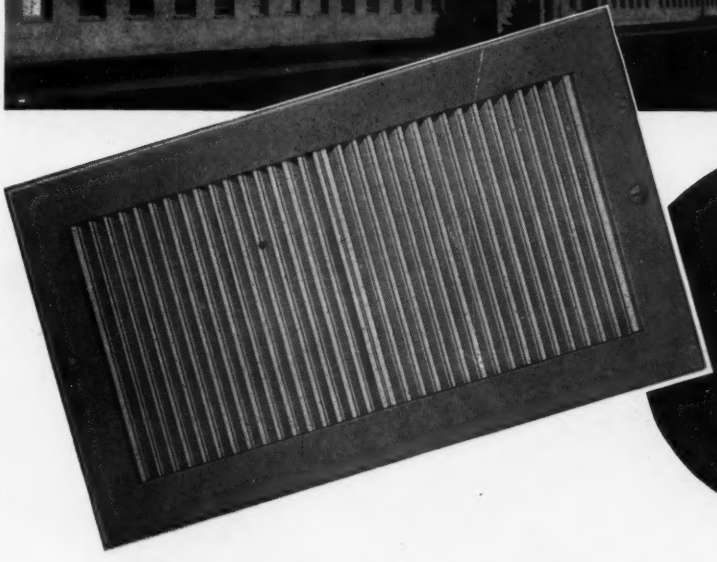
Our plans do not call for nor contemplate any change in our pre-war method of distribution.

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

AMERICAN RADIATOR & Standard Sanitary
New York CORPORATION Pittsburgh

Genuine SUNBEAM *repair parts are available*

AUER REGISTERS were installed in the Army's Pentagon Building

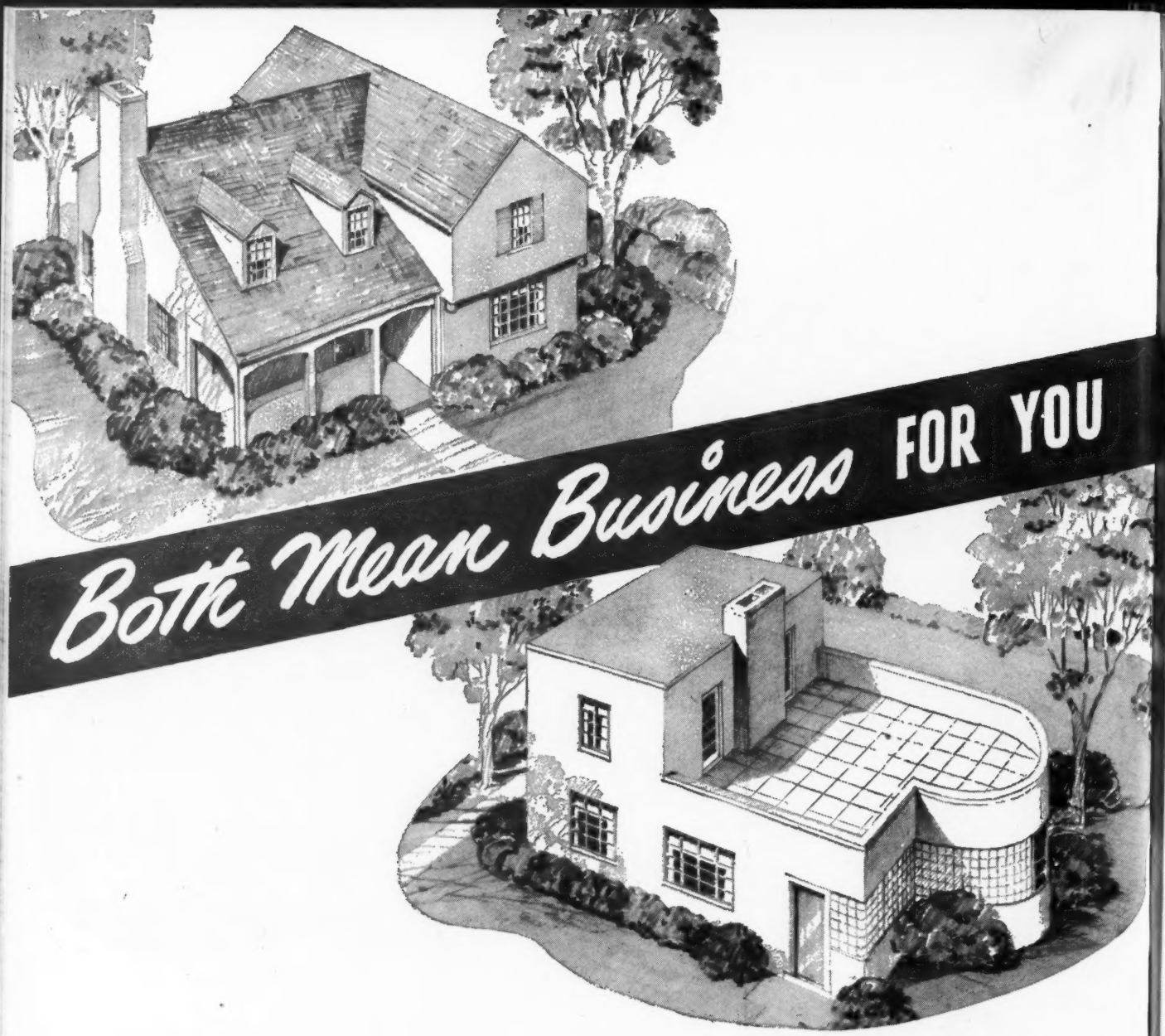


A notable example of high acceptance for Auer Products is the fact that Auer Registers and Grilles are used throughout for the air conditioning system in the War Department's Pentagon Building at Arlington, Va. This vast structure, which is probably the largest office building in the world, with over 6 million sq. ft. of total area, covering 33½ acres, houses about 40,000 workers, has over 16 miles of corridors, contains approximately 60 miles of duct work, and required thousands of Auer Registers and Intakes. The suitability of Auer designs to meet the exacting engineering requirements of this outstanding job is worthy of special note.

Auer has numerous models for warm air heating or air conditioning, suitable for any installation, large or small. Write for Auer Register Book—or for Catalog "G" on flat metal grilles.

The Auer Register Co., 3608 Payne Ave., Cleveland 14, Ohio

AUER REGISTERS & GRILLES · For Air Conditioning *and* Gravity



MILLIONS of people will, one day, be able to carry out their plans for building and remodeling homes. Then the need for roofing, siding, partitions, ductwork and insulation will bring unprecedented demand for your craftsmanship.

You know that U·S·S Steel Sheets have proved their value in countless new uses during the war. Remember—the versatility of steel will be at your service to the highest degree when you use U·S·S Steel Products.

You want sheets that are carefully finished, true to gage, flat, ductile—uniform and always dependable.

Those are the very characteristics that have won such outstanding acceptance for U·S·S Steel Sheets among sheet metal workers.

You can get U·S·S Steel Sheets in a wide range of sizes, made to exact specifications for each particular need. When you use those sheets you are assured of complete satisfaction in their performance.

Your customers too, have long known about U·S·S Steel Products. They are constantly being reminded of their outstanding virtues by the most intensive nation-wide advertising and development program ever attempted by the steel industry.

We remind you of these things now, so you can plan wisely to bring a full share of these future profits into your own shop. When steel is again available, you can look to U·S·S Steel Sheets for the material best suited to each job in hand.

Our technicians will be glad to consult with you on your individual problems. Meanwhile, you will find many helpful suggestions on short cuts and shop practice in "The U·S·S Sheet Metal Worker's Guide." We shall be glad to forward your *free* copy. Just drop us a line now.

U·S·S STEEL SHEETS

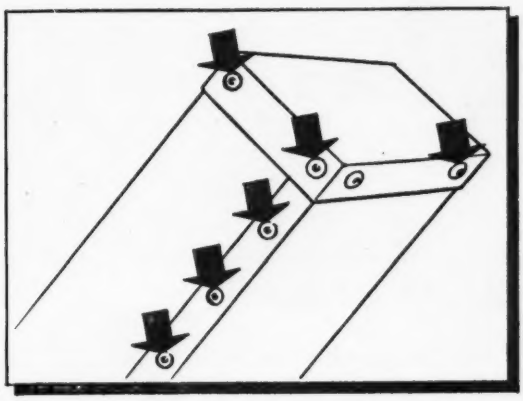
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*

United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

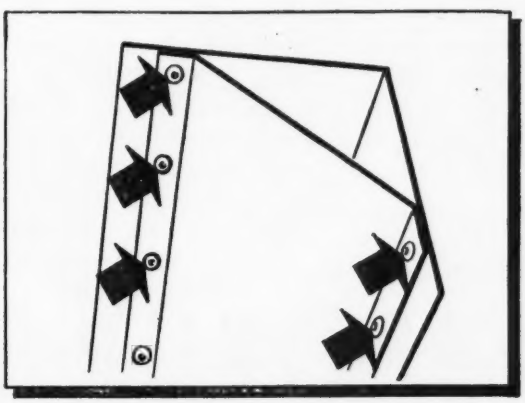
USS

UNITED STATES STEEL

RIVET IT WITH A CHERRY



"Cap a duct and rivet it." The job with Cherry Rivets is as simple as saying it and almost as fast.



Angles, braces, brackets—nasty mean, tough little jobs are a cinch when you rivet them with Cherry Rivets.

Don't limit your use of Cherry Rivets to blind riveting. Use them in all hard-to-get-at places. No bucking bar or other backing required. Use Cherry Rivets in soft and brittle material as well as metal. They are upset with a pulling force so they don't bend, buckle or spread. Use them for short runs or experimental work. No special tool-up or make-ready needed.

Cherry Rivets are easy and fast to apply. Working "blind" from one side of the job only, one man does it alone. They hold tight with a strong, firm clinch. And for blind rivets they are not critical as to hole size or material thickness. Figure out for yourself how Cherry Rivets will help cut your production costs. Or if you would like some help, put the matter up to the Cherry Rivet engineers.

Get this book—Cherry Handbook No. A-43—that describes the many uses of Cherry Blind Rivets. Write to Department A-200, Cherry Rivet Company, 231 Winston Street, Los Angeles 13, California.

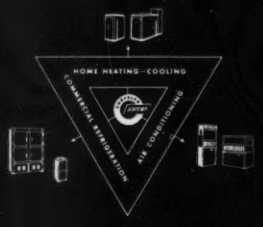
CHERRY RIVETS. THEIR MANUFACTURE AND APPLICATION ARE COVERED BY U. S. PATENTS ISSUED AND PENDING

Cherry Rivet Company

LOS ANGELES, CALIFORNIA

SUMMER COOLING

Proper indoor temperature and humidity in summer are as important to health and comfort as proper, adequate heat in winter. Chrysler Airtemp pioneered summer cooling for the home. Its famous "packaged" cooling units use the ducts, filters and blower of a forced warm air heating system. By also selling summer cooling, heating dealers are provided an opportunity for 12 months profitable operations.



THE TRIPLE LINE

A BIG NEW BASIC MARKET AWAITS HEATING DEALERS

A vast new market—summer cooling—will open up with the gigantic postwar modernization and new home building programs. No longer will it be necessary for even the modest home owner to suffer the discomfort of excessively hot, moisture-laden air throughout the summer months.

Long before the war, Chrysler Airtemp was installing summer cooling systems in homes. In days to come, these time-tested units, manufactured on a mass production basis, will bring greater indoor comfort and health to Americans. Heating dealers will find Chrysler Airtemp heating and cooling units the means of greatly increasing their revenue because home owners will want controlled indoor climate the year around.

Direct dealer contracts will be available for *just* the Chrysler Airtemp heating line—or for heating in combination with cooling or commercial refrigeration—or for all three of these great business-building lines. Airtemp Division of Chrysler Corporation, Dayton 1, Ohio • In Canada, Therm-O-Rite Products, Ltd., Toronto.

The Indoor Climate Institute is making the American Public Conscious of the Need for Greater Indoor Comfort and Health.

MEMBER I.C.I. INDOOR CLIMATE INSTITUTE

Next Month's Advertisement Will Be Devoted To Commercial Refrigeration

Buy More War Bonds! Tune in Major Bowes every Thursday, CBS, 9 p.m., E.W.T.

CHRYSLER AIRTEMP

HEATING • COOLING • REFRIGERATION

Gentlemen, BE SEATED!

Sit right down . . . Mr. Dealer, Mr. Builder, Mr. Architect . . . There's a continuous conference going on - - determining *the MOR-SUN product and policy*. Your answers to our questionnaire started us off - - but we want you to keep your voice in our councils - - so that when that great day comes, you'll have the product and the policy *you* want . . . the finest complete line of pressed steel forced air furnaces for all fuels . . . PLUS the most mutually beneficial manufacturer-dealer relationship in the history of the industry!

Yes, we want you to sit down - - and tell us more of what you want!

MORRISON STEEL PRODUCTS, Inc., Buffalo 7, N.Y.

"The Sun Never Sets with MOR-SUN!"

you can turn to him FOR SPECIAL COATED SHEETS

The Armco Distributor is a good man to know. Quota limitations hamper him now, but he will do his best to supply the sheet steels you need. After the war he will serve you promptly with the most complete line of special-purpose iron and steel sheets in the industry.

IT'LL MAKE MONEY FOR YOU

One of the Armco special coated sheets you can recommend with confidence is Galvanized PAINTGRIP. This is the *original* Bonderized zinc-coated sheet, widely used for work that must be painted immediately with assurance of long paint life.

Use PAINTGRIP for roof drainage installations, basement air-ducts and all other work that requires the beauty and extra protection of paint. It will insure a first-class job, save money for your customers, and bring you valuable word-of-mouth advertising.

REMEMBER THESE SPECIAL GRADES

Among the other grades your Armco Distributor will supply are Stainless Steels, Galvanized ARMCO Ingot Iron, copper-steel and commodity steel sheets. These give you the choice of a wide range of sheet steels for every kind of work.

ASK FOR MORE INFORMATION

When you plan your peacetime work ask your Armco Distributor about these special grades. He can give you the information you need. If you are not acquainted with the Armco Distributor in your territory, just write to The American Rolling Mill Company, 2571 Curtis Street, Middletown, Ohio.

ARMCO DISTRIBUTOR SERVICE

WITH 100 billions of personal savings burning in its jeans, the American public will shop, and order, and buy like mad, once the stuff they hanker for can be had.

Thousands of home-owners, come Hades or high water, are going to have York Heat as soon as they find someone to take an order. That someone may as well be you, if the franchise in your locality is untaken.

National advertising, the good repute of York Heat, are selling more and more of these folks every day. They're looking to York Heat for the finest and most complete line of domestic, industrial, and commercial oil-burning equipment in America.

We're ready to supply you. Ready to back you up with a flexible, tailor-made job of cooperative local advertising. Ready with a streamlined, non-recourse financing-plan which carries purchases of York Heat from factory to customer; little need for you to put up capital.

If this whets your appetite for a York Heat franchise, do something about the coupon at the right—Now!

YORK HEAT

YORK HEAT, Division of
YORK-SHIPLEY, Inc., YORK, PA.

Gentlemen:

I'd like to hear more about a York Heat franchise. Send me full details. I am interested in ☐ Domestic Heating ☐ Industrial Heating ☐ Both.

Name.....

Address.....

A-11

Bonds are the backbone of the attack—buy more!

Division of* YORK-SHIPLEY, Inc., York, Pa.—*Member Oil Heat Institute of America

Call Ryerson ...for quick steel

CALL THE PLANT NEAREST YOU

CHICAGO.....16th and Rockwell Sts.
Rockwell 2121

MILWAUKEE.....320 So. 19th St.
Mitchell 7000

DETROIT.....1600 E. Euclid Ave.
Madison 3860

ST. LOUIS.....5 Clinton St.
Central 1020

CINCINNATI..Front St. and Freeman Ave.
Cherry 3232

CLEVELAND...E. 53rd and Lakeside Ave.
Henderson 1000

PITTSBURGH.....330 Grant St.
Walnut 7540; Carnegie 795

PHILADELPHIA.....5200 Grays Ave.
Bell-Belgrade 1412; Keystone-West 1644

BUFFALO.....40 Stanley St.
Humboldt 3311

NEW YORK.....203 Westside Ave.
Jersey City, N. J.
New York City.....Rector 2-3700
Newark.....Market 2-6067
Jersey City.....Bergen 4-1123

BOSTON..Third & Binney Sts., Cambridge
Kirkland 6000

JOSEPH T. RYERSON & SON, INC.

WRITE FOR STOCK LIST

Over 10,000 kinds, shapes and sizes in stock...

PROMPT, PERSONAL SERVICE ASSURED

RYERSON STEEL-SERVICE

The Dealer in Post-War Employment

UP TO now, most of the suggestions for keeping 55 million persons working after the war have laid emphasis on employment in industry. By industry is meant, usually, manufacturing.

Now the truth is that by far the greatest number of persons can be employed in the "service" or distribution—not in industry. Take, for example, our own furnace manufacturing and installation business. It is true that most furnace manufacturers need more men —quite a few more men. But actually, few manufacturers could use to advantage twice as many men as they now have. When we remember that in normal times all our heating equipment manufacturers employed relatively few thousands of men it is readily seen that even if—postwar—this force is doubled it will still not mean much increase in the overall employment problem.

On the other hand—and again using our own industry as an example—the installation end of this business (which is really the service part of our work) has now a crying need for more men—not a few thousands, but many thousands. After the war, if the volume of new and modernization work we expect materializes, the contractors will need tens of thousands of more employees.

Machines can help some in installation work, but not to the extent machines can reduce labor hours in the manufacturing plant. So, despite all improvements in technique and despite the machines and tools our shops now have available—there will still be need for more men in our installation work.

There is this other factor—many shops have closed up during the war. Most of these have been the small shops where the owner never made more than day wages and during the war can make much more in a shipyard or elsewhere. But some pretty sizeable shops have also closed up. By and large the result is considerably fewer shops now than in 1940. How many, no one actually knows, but it must be hundreds at least.

Many of these will open up again after the war. We probably will have thousands of newcomers opening shops after the war. These newcomers have learned the sheet metal trade (or a reasonable facsimile thereof) during the war and feel fully capable of operating a business. Time will tell whether or not they are correct.

So all shops now open, plus all shops reopened by owners coming back from war plus shops started by newcomers will all need men after the war—if home building and construction in general reaches the volumes predicted. The total of men so employed will be great—surely in the tens of thousands and far exceeding the number of men needed to manufacture heating equipment.

This fact—only now receiving recognition—should have an important bearing on this industry's labor problems after the war. For example—what have we done, what can we do, to make the new shop owners better business men? Granting that many men whose shops are still open are not too good business men, there still should be some effort made to teach newcomers basic management principles. This can and will be discussed countless times in the next ten years, but one suggestion might be uniform and simple bookkeeping and cost accounting systems similar to the one the paint industry and the hardware industry has been offering for many years and offered through our associations.

By the same token, now is none too soon to begin putting our house in order for postwar apprenticeship training and mechanic training. Are we still using methods and curriculum designed for the days of handcraftsmanship or are our courses geared in the modern tempo. Does a mechanic have to know cornice work, or how to make pails and funnels—remember the armed forces have condensed college courses into two years and mechanical trades training into a couple of months. The results may not be "all-around" men, but do we need all around men any more?

Finally, it might be advantageous if all local and state associations gave some time to stimulating members to think. For instance, heating men have gone along for years making beautiful duct work—spending much time in engineering and drafting the pieces. After the war the whole industry will be asked to accept one simplified and standardized method of designing a duct system—there won't be need for individual tailor-made duct work. Shops then, no doubt, can select whole systems in fifteen minutes or use the same patterns or templates over and over again. We should begin to think now of these developments so that, after the war, we can be ready for the tremendous business we have been promised.

$200,000 To Advertise Warm Air

WARM air heating held public acceptance and approval in the ratio of better than 2 to 1 prior to the war. Our problem is to hold that acceptance and even extend it if possible after the war.

The best way to insure and accomplish this in the post war period in the studied opinion of the Publicity and Merchandising Committee of the National Warm Air Heating & Air Conditioning Association, is by the united effort of manufacturers, jobbers—and dealers—speaking through a national advertising and publicity program which will hammer home week after week the message of better heating and indoor comfort through warm air heating equipment. Through such united effort and voice no home owner thinking of modernizing his existing furnace and no prospective builder of a new home should think of heat without thinking of warm air heating.

Since last December the Publicity and Merchandising Committee has held numerous meetings to investigate and study ways and means of accomplishing this highly desireable result—the committee now proposes a $200,000 advertising campaign in such national publications as those shown on the facing page. Manufacturers, jobbers—and dealers—will shortly be asked to subscribe to this fund.

The solicitation program has progressed to the point where within a short time a sales brochure will be ready for mailing. It is planned to mail this complete explanation of the program to every interested dealer, jobber and manufacturer telling why the program is needed; how the program will be conducted; how the various divisions will be interlocked for teamwork.

The participation by dealers is the most important development in warm air heating since the start of the research program. There now are some dealer members in the association, but the association has never been able to give dealers the type of service they need. But now, under the proposed program a regular dealers' division is anticipated which will have its own officers—there will be local groups organized in every community where any interest is shown.

The money which each dealer will subscribe will pay his dues and make him a member of this dealers division and will also help to pay the costs of the advertising campaign.

As the program is set up now the dealers participation is as follows:

Objectives for Dealers in Membership

I. (a) To participate in and become a part of national advertising, publicity and sales promotional program to protect their own and the industry's position against all competition—to increase the acceptance of indoor comfort through proper conditioning of the air.

(b) To participate in the research program which is the backbone of the association's efforts and activities.

(c) To improve engineering and installation practices through schools and other activities and, through higher standards, to obtain for heating a larger percentage of the building dollar.

(d) Through advertising, research, training and education to improve the ethical standards of the industry.

II. Dealers will participate in a national advertising, publicity and sales promotional program which will be jointly sponsored by manufacturers, dealers and jobbers.

(a) Dealers will display the association's national triangle emblem in various ways to tie in with the national advertising program which will direct consumers to the dealers who are members of the Dealers Division.

(b) Promotional sales literature will be made available to dealers including a consumer booklet telling about the benefits of indoor comfort through con-

The brochure which tells all about this program should be in the mails late in November. Should any interested reader not get his copy, write to the National Warm Air Heating and Air Conditioning Ass'n, 145 Public Square Cleveland, Ohio.

Heating!

ditioned air, post card series, promotional pieces, envelope stuffers, etc.

(c) Suggested advertisements for local use.

(d) Store signs, window signs, window displays, etc., can be made available.

(e) Through a speakers' bureau, speakers can be obtained to talk before various groups such as women's and men's clubs, schools, and various organizations.

(f) Suggested "publicity items" will be made available to dealers for insertion in local papers.

III. Dealer training and education.

(a) The sections of the new text book now being prepared will be made available to dealers as they are completed as well as all other existing booklets and forms used in figuring jobs, etc.

(b) Dealer schools or clinics will be promoted through a competent instructor for the training of existing dealers and for newcomers to the industry. This training will cover engineering, design and installation for salesmen, installers and service men.

(c) Suggested codes in ordinance form on both gravity and winter air conditioning installations will be made available.

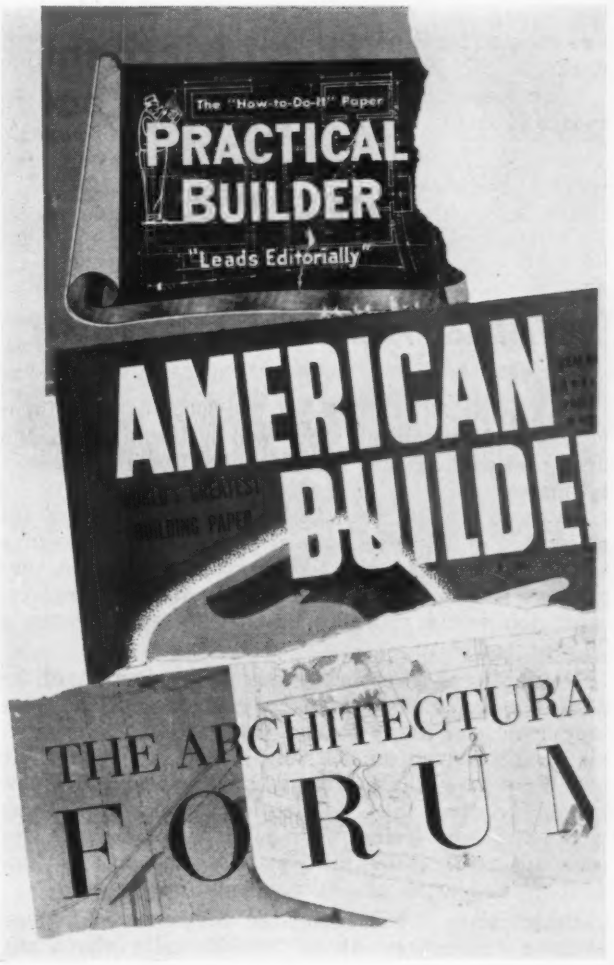
(d) Results of our research investigations are usually made available to our members about six months before they reach the field.

IV. Other Services.

(a) Dealer members can submit any technical or installation problems to the Dealers' Division.

(b) Where changes in city or state ordinances would discriminate against warm air heating, all divisions of the association would throw in their best efforts to make a correction.

This dealer division is now being organized and permanent organization will be established at the winter meeting of the association in Cleveland, December 13 and 14, Statler Hotel. For the purpose of getting organization work under way J. Harvey Manny, president of the Robinson Furnace Company, Chicago, one of the largest dealers in the country, has agreed to serve as temporary chairman until permanent officers are elected in Cleveland.



On Our Industry's Front

Copper Recovery Discontinued

War Production Board
Washington, D. C.
October 12, 1944

To those who have contacted the Copper Recovery Inventory Branch with reference to surplus materials:
Gentlemen:

On October 15, 1944, the Copper Recovery Inventory Branch of the Copper Division will discontinue its activities. In the future, you should contact your District Office of the Reconstruction Finance Corporation for information in regard to listings of surplus inventories of copper and copper base alloy materials. A list of the RFC District Offices is printed following.

The Copper Recovery programs have resulted in the transfer of hundreds of millions of pounds of copper and copper base alloy materials from idle and excessive inventories to purchasers urgently requiring these stocks.

Your cooperation and interest have contributed to a large extent to the success of these programs.

Very truly yours,
MICHAEL SCHWARZ, Director,
Copper Division, WPB Dept. 7300.

◆

12 Million Post-war Housing Units

CONSTRUCTION of 12,600,000 non-farm houses and apartment units will be required in the first post-war decade, the National Housing Agency estimates.

To meet the full need in 10 years would entail replacement of all sub-standard structures and require 16,100,000 units in all, NHA reported, but the conclusions were based on the premise that the replacement job would probably have to be spread over a 20-year period.

NHA offered an average annual production of 1,260,000 accommodations as a goal that would provide homes for newly formed families, including married soldiers who do not now have a home of their own, as well as all other families who will require new housing during the 10-year period, including those who have been living with relatives or friends for economic reasons, but who may become able to "undouble" and establish independent households.

In addition, it was estimated that such an annual average production—about 300,000 units above any year in the past—would wipe out half of the substandard dwellings now standing, eliminate a number of units equal to the number that will become substandard by the end of 1955 and replace losses by fire, storm, flood and other hazards. It also would allow for a margin of five per cent vacancies in the total housing supply at the end of the period.

NHA estimates, in terms of 1944 prices and assuming an average post-war annual income of about $125,000,000,000, that one-third of the required units should be of a type to rent for less than $30 a month in order to meet the requirements of lower-income families. Another one-third would be needed at rentals ranging from $30 to $50 a month with a sale price of from $3,000 to $5,000. The remaining one-third, it was estimated, should rent for $50 a month and up or sell for $5,000 or more.

◆

WPB Discontinues Redistribution

IN THE August issue, page 44, we described the plan for redistribution of surplus and idle materials, machines and tools and suggested readers interested in obtaining such materials get in touch with their regional or local WPB office.

This whole plan, we are now advised, has been discarded as of September 30 and we give you, following, the official announcement:

"The redistribution efforts of the War Production Board have resulted in the movement of large quantities of idle and excess inventories of materials and equipment to essential purchasers who have utilized these idle stocks for the furtherance of military and other necessary production. The termination of this service is made possible by the establishment of other Government agencies, known as disposal agencies, who are actively engaged in the sale of surplus government property.

"The Regional offices of the Reconstruction Finance Corporation are responsible for disposing of the surplus government owned *producers goods, raw materials, capital equipment,* etc., and the Regional offices of the Procurement Division of the Treasury Department are responsible for the disposal of surplus government owned *consumers goods.* WPB urges industry to get in touch with these agencies and fill their requirements to the maximum degree possible.

◆

30,000 Oil Burners

IL burner manufacturers may now apply for permission to produce the 30,000 domestic type oil burners (AA, Sept., 1944) for which material was recently authorized for fourth-quarter production. Order L-74 (Oil Burners) has been amended to implement the authorization of material.

Sale and installation of these oil burners to an ultimate consumer to replace an oil burner that is worn out, damaged beyond practical repair or destroyed, are freed from restrictions under the newly-amended order. However, sales for new installations must be approved by either the Petroleum Administration for War or the Office of Price Administration, depending on which agency has jurisdiction over the use of fuel oil for the installation in question.

No control over distribution of oil burners from the manufacturer's level will be maintained, WPB Plumbing and Heating Division officials explained. However, each manufacturer will be expected to distribute his production through his normal distribution channels, taking into consideration shipments to areas during 1941, migration of workers to certain areas and such other factors as will provide equitable distribution to meet essential needs. WPB also said

it reserves the right to direct the distribution of specified amounts from any manufacturer's production to meet emergencies.

The amended order provides that any manufacturer who wishes to produce domestic type oil burners (Class B) must apply for authorization by letter to the nearest WPB field office. Information about proposed production in units per quarter should be included in the letter. Before submitting his letter, however, the applicant should consult his WPB field office to determine whether it will be necessary for him to file Form WPB-3820 for manpower clearance.

Where the applicant will need controlled materials in order to produce the equipment, the letter should be accompanied by an application on Form CMP-4B for the controlled materials. If the application is approved, the manufacturer will receive authorization to produce on Form GA-1850 from WPB.

◆

Conservation Discontinued

HOWARD COONLEY, Director of the Conservation Division has recommended to WPB that the Conservation Division be discontinued as of October 31, 1944.

The diminishing amount of work remaining to be done in connection with conservation can at this stage of the war effort be handled satisfactorily by the other divisions of WPB. This action does not affect activities of the Salvage Division, nor does it mean there will be any lessening of emphasis on such government programs as paper salvage and conservation.

Through the techniques of conservation—specifications, substitutions, simplification and standardization—the Conservation Division was able to save large quantities of critical materials, which had the effect of expanding our available resources by a substantial amount. By means of writing Federal Specifications, Emergency Alternate Specifications, and War Amendments to the number of over 800, immense quantities of critical materials were saved and transferred to war purposes. By substituting materials that were in plentiful demand for critical materials, the production of many more munitions was made possible. By simplifying types, sizes and varieties of articles, the capacity of production was much increased and critical materials were saved. By standardizing measurements and equipment, material was saved, production was increased and interchangeability of implements of war was greatly promoted.

◆

Post War Building Products

SUPPLIES of building materials and equipment will probably at least keep step with actual demands for supplies for residential construction during the immediate postwar period, according to a survey of housing industry reconversion prospects by the Technical Division of the National Housing Agency.

Various parts of the materials and equipment industry will require from six weeks to seven months to reconvert to a peacetime basis, but this tempo should present no serious time differential as compared with the probable rate of expansion in residential construction, the NHA reported.

General building materials supplies can probably catch up with demand within two months after labor and shipping facilities are made available, the survey showed. Generally, reconversion is a matter of labor and the diversion of raw materials now being produced for military use. This is true of clay products, steel pipes and fittings, reinforcing steel, sheet metal supplies, copper wire and cable. The production of nails and other steel wire products is even now close to 90 per cent of the peak because of war demands.

The production of plumbing and heating items is now high, and could be ready within three months to meet demand.

◆

Controls Off on VE

WPB says that upon the defeat of Germany it will—

1. Remove almost all controls over materials immediately upon the defeat of Germany except those that are absolutely necessary to assure the reduced measure of war production necessary to beat Japan. This means that all manufacturers can use any plant and any materials that are not needed for military production for any civilian production.
2. WPB and other government agencies will do everything within their powers to assist and encourage industry in resuming civilian production and maintaining employment.
3. WPB will maintain its organization and powers so as not to relinquish authority until it is certain that the war production program is adequate for victory over Japan.

There will be only one preference rating, in addition to the present emergency AAA rating, and this rating will be reserved exclusively for military programs during the war against Japan. All other production will be unrated. Manufacturers will be permitted to accept unrated orders, but they will be obliged to fill rated military orders ahead of all other business.

◆

Supplemental 4th Quarter Steel

A SUPPLEMENTAL allotment of 58,428 tons of steel has been made available for the War Production Board's Office of Civilian Requirements to increase a number of civilian production programs in the fourth quarter. The allocation, made by the Requirements Committee, brings the total materials for the direct disposal of OCR to 278,203 tons.

This amount of material for most items involved is insufficient to provide for more than minimum essential requirements in each product and is such that, even if the feasibility of manufacture is established, the products will not come into easy supply.

In all except a few cases, feasibility of manufacture must be fully established, which means that manpower and facilities must be found available without harming war production. In a majority of the cases, changes in one or more of WPB's limiting controls must be made before manufacture can be allowed. These controls include limitation orders, approved Division Requirements Committee decisions and program determinations.

OCR has divided the allotment into three parts:

(1) 9,000 tons for direct allotment to restore cuts in regular fourth-quarter programs and including minor program increases. Programs in this category

(*Continued on page* 110)

Arnold Kruckman's

Washington Letter

Materials For Civilian Products

DURING the past month OCR and WPB announced a reserve had been established of approximately 300,000 tons of steel for production of civilian items. Most of the metal apparently was designed for allocation to the plants which would be permitted to produce under "spot" authorizations. It is not easy to analyze the statements and tabulations issued by the agencies. This report will not make an effort to determine exactly what the statements and the figures mean. It is possible to read optimistic potentialities from one point of view and to derive pessimism from another. When you read this, the election will be a thing of the past. The announcements about the 300,000 tons of steel for civilian requirements were issued at least 30 days before the election. At that time "spot" authorization still was regarded as a cathartic for the general condition which restrained civilian production. And at that time V-E Day appeared to be a week or two away, and most of the controls and restrictions were on the point of dissolution.

Late in October, a week or so before the election, V-E Day apparently did not seem so imminent. WPB passed the word to the PUCs—the Production Urgency Committees—scattered around the country in 150 or so key places, to screen "spot" authorization applications more rigorously, to be dead certain approval would not put any slack in war production. The word came out of WPB informally that it would be necessary to defer the hope inherent in "spot" authorizations at least until February, in order that it would be absolutely certain the road be kept clear for more production of trucks, shells, ammunition, ships, heavy artillery, combat tires, and similar critical battle items.

"Pipe Down" Reconversion

This also was the time the word was passed along to pipe-down on discussions about post-war planning and reconversion. It was feared the emphasis on optimism would slow-down war production. And those who had received "spot" authorizations coined a phrase that has stuck to them: they called the authorizations "hunting licenses," meaning they legitimatized their prowl for materials that mostly were not to be had. Those able to find materials often could not get manpower, and those who found both materials and manpower often found OPA refused to permit them to increase their prices sufficiently to cover the increased costs of materials, wages, and operation. Some plants quit because they could not afford to operate at a dead loss; others took the loss on civilian products and made it up on their war products; still others took the loss—as high as 35 per cent—in order to get a head start on civilian production, assuming V-E Day was just around the corner. Others are reported to have taken on civilian production chiefly to avoid losing war contracts. And the word here is that many so-called "spot" authorizations were not really efforts to start civilian reconversion from scratch, but were authorizations to increase production of civilian commodities already well under way.

Spot Authorization Report

On the whole, a survey is reported to have revealed that no great amount of civilian output was authoriezd among small plants. It is particularly illuminating that 772 authorizations were reported by mid-October and that this number included 579 plants with 50 or less employees. It is still more illuminating to learn that these 579 plants over-all employed a total of 8,021 workers, while the 55 plants which each employed 250 or more workers, authorized to produce civilian goods, had in employment a gross total of 43,570 workers, or more than two-thirds of all the manpower embraced by the 772 plants given "spot" authorizations.

All but 77 of the authorizations were approved in the areas heading up in Boston, Kansas City, Atlanta, San Francisco, Chicago, New York, Philadelphia, Dallas and Cleveland. Plants in the first six cities got the lion's share. Minneapolis, Seattle and Detroit got the least. The actual quantity of carbon steel involved in the "spot" authorizations totaled 12,506 tons out of a total steel production of 20,000,000 tons for the same quarter, and the authorizations for alloy steel covered 137 tons out of a production of 2,700,000 tons for the quarter. The figures and the details are interesting wholly for the deductions you can draw yourself. What may happen in the immediate future is pure speculation.

The discussion about simplification and removal of restrictions is still reflected in OWI releases, but is not lively. The gossip is that heavy plate will continue tight and that copper is tight but will be easier. Heavy plate will be required, they tell us, for many war needs. Lighter steel sheets presumably will be more plentiful late in November and December, and it is anticipated there may be considerable cancellations of war orders for the lighter steel in November and December. At the same time you hear every kind of steel will be needed for the stepped-up campaign

in the Pacific and particularly if the campaign in Europe continues until spring or even longer. The tipsters still predict the Big Push in November will finish the European war before Christmas. They discount Churchill's gloom as politics.

But apparently most of the trained military observers here think it is more realistic to expect a winter campaign is ahead. This leads those familiar with your industrial problems to predict you will still have difficulty in getting the metal you need. Most of those in the know freely admit there is relatively enough steel around to meet your legitimate restricted needs. But they also suggest it is your individual problem to find it. The tip is to get in touch with the regional WPB and OCR offices and to keep in touch with them. It is urged to establish connections with the regional offices everywhere, not merely in your own region. You are very apt to find there is a surplus in one region while another region is short. The thought seems to be that if you keep your lines of communication open everywhere you can find steel.

Small Plants Freed of WMC

A discussion about manpower that has been going on among the various agencies in Washington since August has apparently been clarified. A formula is expected to be announced in November which is forecast in a report just issued by SWPC. "The Smaller War Plants Corporation, the War Production Board, and the War Manpower Commission have recommended that a small plant exemption be put into effect in the near future, exempting from a labor clearance all small plants employing less than 50 wage-earners on the West Coast and 100 elsewhere if the approval of Spot Authorization application results in no increase in employment." In other words, this exemption will free those in the 50 and 100 worker bracket, operating under "spot" authorization, from manpower troubles with WMC. The report was issued on November 4; it contains this encouraging paragraph: "The progress which has been made to date is encouraging to small business. Since the establishment of the steel reserve, the allotments of material under the Spot Authorization Plan have risen sharply. There is reason to believe that the Spot Authorization Plan will do much toward absorbing pools of unemployed labor not used in the war effort and of preventing hardships among small plants arising from restrictive orders and inability to obtain materials."

There is still more arresting text in the report; under the heading of Resumption of Civilian Production, Chairman Maury Maverick states: "Our position in regard to 'resumption of civilian production' is and always has been clear. War production comes first at all times and at all places. However, many small plants have been and are being let out of war production and no further war contracts can be obtained for them. Sometimes their subcontract has been 'pulled in' by the prime contractor; sometimes the item on which they are engaged has become obsolete; sometimes their contract has simply run out. And, in addition, some small plants never could be fitted into war production.

"For all such small plants, the position of the Smaller War Plants Corporation is simple. Every effort should be made to obtain other war contracts for them. If this fails, they should be permitted to produce civilian goods, provided that such production would not interfere with the war effort.

"This is essentially the position taken by Congress in passing the George Reconversion Bill. (Public Law 485, creating the Office of War Mobilization and Reconversion.)

"In that Act Congress made clear that war production must come first, but when civilian production is resumed, small plants must be enabled to participate in it. Recognizing that the resumption of civilian production would undoubtedly get under way on a restricted basis, since materials and labor would probably be insufficient to meet all possible demands, Congress DIRECTED the executive agencies to take certain definite steps which would prevent small plants from being 'frozen out' of the resumption of civilian production.

"The Reconversion Law is of tremendous importance to small plants in the Reconversion period. Sections 203 and 204 of the Act contain three negative and two positive directions to the executive agencies. Specifically, the negative directions outlaw the 'Industrial Grandfather Clause' principle of reconversion—the principle that no plant can make a civilian product in the reconversion period unless it made that product before the war. Similarly, they outlaw what has become known as the 'Cherokee Strip' principle of reconversion—the principle that all producers of a civilian-type product should start at the same time, which, of course, holds up small plants until their large competitors have finished their war work. The last of the negative directions is even broader. It provides that in the resumption of civilian production on a restricted basis, no small plant 'capable and desirous' of participating in such resumption can be prevented from participating.

"The positive or affirmative features of the Act are, first, that the resumption of civilian production should be permitted as soon as materials, components, facilities and labor are available, and, second, that the executive agencies, in allocating materials for non-war use, must set aside a percentage of such materials for the exclusive use of small plants. . . .

"The Smaller War Plants Corporation will endeavor to notify all small business men that they cannot be kept out of civilian production merely because they did not produce an item before the war or because any of their competitors are engaged in war production. In addition, whenever the War Production Board resumes civilian production on a 'programmed basis,' The Smaller War Plants Corporation will endeavor to see to it that all small plants which are 'capable and desirous' of participating are included.

"Finally, the Smaller War Plants Corporation will perform the duties directed to it by Congress in the work of setting aside materials for the exclusive use of small plants. This means that the Smaller War Plants Corporation will select those particular allocated materials which are of great importance to small plants and will present to the War Production Board the needs of small plants for such materials. . . . It will request materials for small plants from the Requirements Committee of the WPB in the same way as the Maritime Commission does for shipyards, the Office of Defense Transportation does for railroads, the War Foods Administration does for agriculture, etc."

To grasp the significance of this declaration by Maverick in his report to the Chairman of the WPB, it is necessary to realize that "production on a programmed basis" means the Spot Authorization Plan, as well as all other similar programmed civilian pro-

(*Continued on page* 116)

Do Your "Estimated" Profits Balance with Your Actual Income and Outgo

By Arthur Roberts

PRECEDING articles in AMERICAN ARTISAN have covered the estimating of installations and service jobs and the computation of overhead on estimated work. The contractor could take all estimates at the end of a "period" and make up a profit and loss statement as follows:

Dollar sales value of all estimates.....		$....
Labor	$....	
Materials	....	
Direct job expense	....	
Prime cost (deduct from sales)	$....	$....
This gives the margin on sales.....		$....
Overhead expense (deduct from margin).....		$....
This gives the net profit on sales.....		$....

Fill in these listings with the sum-total of all figures on estimates. The result will be the total net profit as you estimated it. But will these figures coincide with actual income and outgo? The only way to find out is to prepare a profit and loss statement from your financial records and compare the two types of recordings.

If you handle only installations and service, the total sales dollar on the financial records should check with the total on estimates, eliminating free service. All other items may be out of line, more or less. That's why you should compare the estimates with financial records periodically, preferably monthly, so that you can investigate serious discrepancies and apply correctives.

Lost Time on Labor

First, take labor. This may differ because you used more or less labor on jobs than you estimated or you may have estimated the correct labor charge, but delays, incompetent workmanship, necessitating do-overs or "soldiering," may have upped the time so that you paid out more money for labor than you charged customers. Say that three men work 120 hours weekly at $1 an hour. You must pay them $120 weekly and record same on your payroll account. Say your estimates show labor charges for the week totaling 110 hours but your men worked 120 hours and were paid accordingly. You are out $10 on labor. By means of adequate accounting, the contractor can find out *why* by checking his estimates against experience figures to determine how similar jobs in prior periods were "timed." If he finds that he has estimated the same hourage, he is safe in concluding that the differential is due to unusual delays or other defects. Whenever substantially more time is spent on a job than estimated, the foreman, worker or contractor should record same on the estimate sheets or time tickets, hence, a checkback of current estimates may divulge the reason for the labor loss, otherwise the contractor must take up the matter with his men. The moral effect of such an investigation is well worth while even though you seldom can retrieve a loss of this kind, but you can take steps to prevent a reoccurrence.

Inventory Traces Materials

Now, consider materials. If you purchased goods for every job right from the supplier and had the materials sent directly to the job, it would be a comparatively simple matter to check this element on your estimates against the suppliers' invoices. Any overage or shortage on each job could be cleared through suppliers and their invoices for materials per job would be your cost. But, in most establishments, the contractor buys materials and holds them in stock until needed, thus the materials are pooled in stock bins and racks and cannot be traced readily from suppliers' invoices to estimates.

Contractors do not earmark goods in stock according to suppliers' invoices. The same items in one bin may have been bought at different times from different suppliers at different prices. Only through taking inventory can the contractor know whether he used the exact quantity of materials shown on estimates. His stock requisition slips (see August issue containing our article, "A Postwar Cost System") will help to keep a day-to-day check on overages and shortages for each job, but over a period he can determine the accuracy of these transactions in dollars and cents only through a check-up with his profit and loss statement and this involves the taking of inventory. However, taking inventory takes up too much time monthly in most establishments. It can be done only where the contractor works on hand-to-mouth stocks and this is seldom wise. Means lost time and delays waiting for goods to come from suppliers when needed on jobs. The following recap shows how inventory is computed:

1—Inventory at the beginning of the period (book figure).

2—Purchases during the period (book figure).

3—Total stock recorded during period (add the above).

4—Deduct stock used during period (get this from estimates).

5—This gives you stock on hand at the end of the period to be carried over to the beginning of the next period. But, unless you take inventory to verify the accuracy of this recording, it is only a book figure.

The only way you can be certain that the inventory recorded in your books is accurate is to take a physical count. Let's suppose you do take inventory and find a shortage of $100 for the period. In other words, your book figure shows $100 more than the value of the materials actually counted. So what? You may have figured your stock wrong, so check with suppliers' invoices to find out. If inventory at the beginning of the period was accurate, if purchases have been recorded accurately and materials used as per estimates, then you passed out more goods on jobs by $100 than you charged for, and it is up to you to find out why, whether you estimated requirements inaccurately or whether materials were estimated properly in accordance with experience figures but they were manhandled somewhere along the line.

Substitute for Actual Count

But you can't tell whether the inventory book figure at the end of a period is accurate unless you take a physical count, and, as stated previously, this may take too much time to compute every month so you have two other ways to handle it. Estimate the month-end inventory, which means that the carry-over to the beginning of the next month is also an estimate or take the materials-to-sales percentage as shown on the profit and loss statement when you last took inventory, and use that on current estimates. If, for example, this percentage is 35 per cent of sales and current estimates show that this ratio is 40 per cent of sales, you are using more materials on jobs than previously. Why? The cost of materials may have increased and you have not covered this increase in your selling prices or you may be using more materials on jobs than customary because of inefficient supervision in one way or another. You may, of course, estimate the inventory for a period, but this is a risky procedure, and if done, you should make a physical check two or three times yearly to verify the accuracy of your estimates.

Direct job expenses are not so hard to compare because they are usually dollar-and-cents outlays as shown on petty cash slips or check pay-outs. If there is a difference between direct job expense as shown on the profit and loss statement and the total on estimates for the period, they should be checked back. You may have omitted some items or charged more or less.

The margin on the profit and loss statement and on the estimates will differ in accordance with the difference in labor, materials and job expense.

Check Overhead Monthly

The overhead expense on the profit and loss statement will be itemized but not on estimates, which show this operating element as a percentage of cost, a percentage of sales, or the overhead cost per labor hour. If the overhead is $350 on estimates for the month, and $400 on the profit and loss statement, the $50 difference may be due to an unexpected increase in overhead for that month, a condition that you could not foresee because you must base the overhead calculation used on estimates in accordance with prior-period figures, from 1 month to 12 months, depending upon the degree of stability prevalent in business and economic spheres. If overhead has increased, you lose the $50 but you can take steps to prevent further losses by raising the overhead on estimates for the coming month. Before making this comparison, make sure that all essential items are recorded properly, that you have omitted no expense that should be there, that you have pro-rated all fixed charges and other expenses.

This is a matter more of profit and loss statement analysis, which we will take up in a subsequent article where we will show how to prepare this statement from the financial records. In this article, we cover mainly the comparison of profit and loss statement figures for a period with the figures on estimates. In some costing systems the cost figures are tied in with the accounts, but we believe that the small and moderately-sized contractor will fare better if he keeps his estimate costs separately in job envelopes (See the August issue in which we outline "A postwar cost system") and makes comparison with financial recordings monthly.

Over Counter Sales

If you have used the right percentage to sales or cost, or the right overhead cost per labor hour, your overhead on your financial records should approximate closely the overhead on estimates for the same period, unless costs have increased or decreased. If you made over-the-counter sales during a period; these transactions must be omitted from comparisons with estimates. This would include sales, cost of merchandise sold and any other expense directly chargeable to over-the-counter business. Incidentally, it makes no difference how you cost your overhead (See "Understand your overhead" in the October issue), the comparison is made on dollar value and the difference noted in dollars and cents. Any difference is then investigated.

Check Profit Against Estimates

The net profit on the profit and loss statement will agree with the net profit on estimates if all other elements of cost agree, otherwise, the net profit will differ in like degree.

To date, we have shown how to cost estimates and how to compute overhead on estimates. In this article, we show how to compare estimates with the profit and loss statement, which is taken from the financial recordings of your business and represent the dollars and cents you take in and pay out, also accounts receivable and accounts payable for the period, sums credited or charged but not settled with cash. Too many contractors scan the profit and loss statement, analyze it and let it go at that. Unless these figures are checked against estimates as described, and the estimates based on experience figures, you won't get maximum information from profit and loss statement analysis. Like a well-geared machine, the procedure meshes perfectly. You estimate jobs based on labor and materials figures taken from profitable work done in the past and overhead as shown on prior financial statements, you analyze profit and loss items to see that they are correct and you compare profit and loss figures with the figures on your estimates for the same period. In times of stability, you may go back 1, 2 or 3 years for your experience figures because ratios are more fixed. In times of instability, such as now, you must use short-term yardsticks, from 1 to 12 months.

Interpretations, Amendments, Easements, To Existing Orders

L-22 Amended

TO BE effective October 23, L-22 has been amended. The following interpretations of the amendments is not official, but are the interpretations of several WPB and industry officials.

The "Base Period" clause has been omitted.

The provision which required that each manufacturer produce furnaces only in the fuel types he manufactured during the three year period ending April 1, 1942, has been removed. This permits new manufacturers to enter the industry.

Cylindrical casings for furnaces of less than 250,000 Btu may now be heavier than 26 gauge.

The following may now be made of metal—water pans, humidifiers, coiled wire handles, more than one detachable name plate.

The following, also, may now be made of metal—feed door curtains, feed door liners, hot blast doors, upright shaker handles, extra panels for turning radiators, inner liners for casings.

◆

Revised Copper Order M-9-C

CONSERVATION Order M-9-C has been amended to relax some of the restrictions on the use of copper and copper base alloys, but most of the relaxation applies only to products and uses outside the sheet metal contracting industry.

The only change affecting our industry is the granting of permission to manufacture copper and copper base alloy sheet, strip, roll and rod for building construction for repair and replacement purposes and to fill military contracts. Manufacturers of products still on the prohibited list may use inventory that was on hand on or before June 30, 1942.

◆

Metal Signs Released

IRON and steel in frozen, idle or excess inventories, and aluminum and magnesium, may now be used in the manufacture of metal signs, the WPB announced October 7. Previbusly, production of metal signs was prohibited.

The metal signs order, L-29, was originally issued to curtail the use of metals in the manufacture of signs, to make metal inventories in the stocks of sign manufacturers available for direct war use, and to bring about the conversion of sign manufacturing facilities and labor to war production.

As a result of the order, the larger sign manufacturers converted their facilities to war production and have been actively engaged in manufacturing such products as tent shields, smoke pipe, bomb fuse parts, detonator caps, industrial sirens, signaling devices, spark arresters and reflectors. However, a vast majority of the 7,500 sign manufacturers were unsuccessful in securing war work and have continued their operations on a reduced scale by resorting to substitute materials, such as lumber, which are now more critical than metals, WPB said.

While the order stopped the consumption of sheet metal formerly absorbed by sign manufacturers, it failed to recover large quantities of metals from inventories because forms and shapes in sign manufacturers' inventories were generally found to be unusable for war production. For the most part these inventories, still held by sign manufacturers, have been idle and are subject to deterioration.

The October 7 amendment to L-29 also provides that sign manufacturers may apply for permission under the "spot authorization" plan established by Priorities Regulation No. 25 to use other metals besides aluminum or magnesium or to use iron and steel not now permitted for sign manufacture.

◆

Rebuilt Motors

REPAIR shops needing standard model, rebuilt fractional horsepower motors for replacement purposes may obtain information from the War Production Board regarding the acquisition of such motors, WPB's Electrical and Mechanical Repair Section announces.

Information regarding the acquisition of rebuilt motors for repairing oil burners, coal stokers, commercial refrigeration systems, pumps or any other motor-driven appliances can be obtained by writing to W. T. Wessels, Used Motor Section, WPB, Temporary "E" Building, Washington 25, D. C. That office receives reports on used motor sales and deliveries and maintains current records of the availability of rebuilt motors.

The supply of new motors for civilian repair needs is still insufficient and deliveries of those that are available are often considerably delayed, officials explained. Demands from the army services for small fractional horsepower motors are responsible for the shortage, WPB said.

◆

Home Building Relaxed

RESTRICTIONS have been relaxed to permit construction of houses approximating pre-war standards. The WPB and the NHA announced their action would "permit builders to make use of materials and equipment as they become available."

Restrictions on total floor area permitted in a dwelling unit were removed, but the maximum board foot allowance of dimension lumber per square foot of floor area was retained.

Another relaxation eliminates a requirement that in certain areas exterior walls be of masonry, clay, or concrete products. Houses thus may be built to

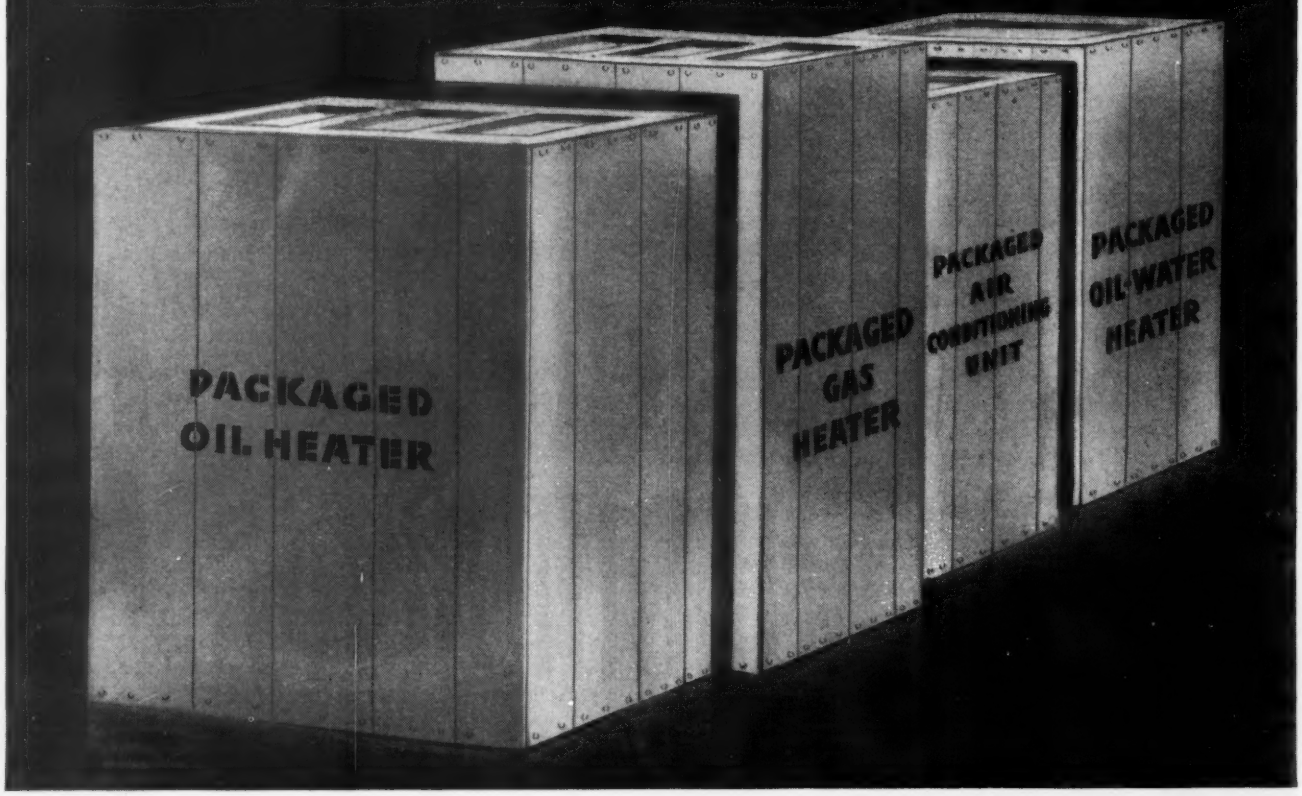
(*Continued on page* 110)

RESIDENTIAL AIR CONDITIONING

SECTION

DEVOTED TO HOME AND SMALL COMMERCIAL AIR CONDITIONING

SOON YOUR PLANS WILL MATERIALIZE



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Just as important is the consideration given to type of fuel, whether it be oil, gas, bituminous or anthracite coal. Each has its values and its advantages that stem from location, as well as from buyer preference.

The "Toridheet" line of heating equipment is designed and built on the theory that heating and air-conditioning are our business. Thus the Toridheet line includes the famous Toridheet oil burner—the cornerstone and foundation of our business—oil burning units in complete packages for steam, hot water, warm air, and oil burning water heaters, all of proven quality and performance. All nationally recognized for low service and low maintenance cost.

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Architects and builders are invited to correspond with us for more intimate detailed information. *Toridheet* heating units cannot be shipped now because we are wholly engaged in war production. But we assure you that when "tomorrow" comes, Toridheet will be ready. Write.

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Oil Burners • Air Conditioning Units • Oil-Burner Boilers • Coal and Gas Furnaces • Water Heaters

P-55-c

As amended, drops all reference to "basements" therefore forced air can now be requested by builders for houses with basements and in replacements should no longer be denied if there is a basement. Also, reference to "non-metallic" materials for ducts is dropped —so we can now build ducts of metal—providing you use "idle or excess" material. What we want to know is—what is idle or excess —see text below.

LIMITED Preference Rating Order P-55-c has been amended by revising Schedules 1 and 2. The purpose is to relax restrictions on materials so that houses approximating pre-war standards may be constructed. P-55-c is the order which authorizes housing construction under L-41 and assigns a preference rating and an allotment number for material necessary for construction, remodeling and installations. Schedule 1, in the amended order, limits the materials for which an allotment number or a preference rating may be used.

There are two changes of importance to the warm air heating industry. The first change is Section 525 —"Air heating systems, with fans, blowers and motors." So listed in Schedule 1, Section 525, indicates that a preference rating may be secured for these products.

And because fans and blowers with motors are shown in Schedule 1, we may also interpret that henceforth forced air heating systems will be permissible in new housing.

Note that no reference is made to "basements." Under the former schedule forced air was not permitted in houses with basements. We may interpret this change as indicating that forced air is permissible in houses with basements.

Readers will further understand that previously when a home owner made an application for a forced air furnace or a winter air conditioning unit, the priority section of FHA usually consulted P-55-c which showed that forced air was not permitted in houses with basements, so if the owner had a basement forced air was frequently denied. Now, with no such reference to basements, it may be interpreted that forced air will be passed upon regardless of basement or no basement and solely on the merits of the application as a hardship case.

For new housing construction the procedure under P-55-c would seem to be this—the builder submits his plans and may ask for forced air furnaces. If FHA approves, the builder will get a rating H-1-AA3 for new war housing; H-2-AA3 for housing in congested areas; H-3-AA3 for hardship construction. The builder will extend this rating to his sub-contractors and the sub-contractor (furnace dealer) will extend this rating to his jobber or furnace manufacturer.

For straight replacement work (new gravity furnace replacing an existing gravity furnace) L-79 still applies. But if a homeowner has a legitimate hardship case, an application may be made to FHA on Form WPB-2896 for a forced air furnace and if approved should get a rating of H-3-AA3.

Probably, as in the past, a great deal will depend on the local processing office. Reader's best procedure will be to apply and see what happens.

The second change of interest is Section 530, which now reads: "The necessary distribution materials and smoke pipe may be employed for the system to be used except that metal ducts for warm air systems shall be fabricated from steel obtained from idle or excess stocks or from aluminum and magnesium. Distribution controls and safety equipment as required for a complete system."

Note that no mention is made of "non-metallic materials." The previous schedule said: "5321—Ducts —straight runs of non-metallic materials, zinc coated ferrous metal permitted for fittings, hangers, and fastenings. Metal heavier than 26 gauge not permitted."

Under this previous wording, the industry was accustomed to make warm air runs (straight) beyond 6 feet from the bonnet of non-metallic materials and to pan joists for return with non-metallic materials.

The wording of the new Schedule 1 is seemingly clear enough. It means that if you have or can buy metal from idle or excess stocks you can make your warm air and cold air runs of metal.

But readers also know that during the past year there has been no galvanized sheet in idle or excess stocks. And what little black iron there has been available has been in very heavy or very light (30 gauge) metal. The intent of new Schedule 1 is to put into use materials which are now more plentiful than previously.

So what we want to know now is—what is idle or excess material.

For example—suppose under CMP-4 a warm air furnace dealer has been buying 20,000 pounds of galvanized iron per quarter. Suppose the dealer has all or some of this 20,000 pounds in stock—can he make warm air and return air pipe from this material for a housing project rated H-1-AA3 or H-2-AA3 or H-3-AA3?

Or another example—suppose a builder gets an approved rating of H-1-AA3 for a project and extends this to the furnace dealer. Can the furnace dealer extend this H-1-AA3 to his jobber or manufacturer for sheets to fabricate warm air and cold air pipe? And if the jobber or manufacturer honors this rating can the dealer use this material for his duct work?

True, this is not strictly idle or excess material, but the dealer is authorized to buy 20,000 pounds of iron, and if he does not use or need it for other purposes why not use it for ducts?

AMERICAN ARTISAN has sought rulings on these questions from the Chicago WPB and FHA and as this issue goes to press the interpretations have not been received.

Note, also, that Section 530 says aluminum or magnesium may be used. AMERICAN ARTISAN has heard nothing of magnesium ducts, but there is a report in this issue on the use of aluminum for duct work and smoke pipe. The conclusion is—(1) aluminum is satisfactory for duct work, easy to work, nice appearing, (2) aluminum at the present price of 35 cents per pound results in duct work too costly for the average job, (3) manufacturers believe aluminum—if it comes down in price—is a good possibility for duct work.

Suggested Ordinance Form and Code For the Design and Installation of Warm Air Winter Air Conditioning Systems

The warm air heating industry has long needed a "standard" ordinance form of forced air code, on which the whole industry can agree and which all branches of the industry can offer interested cities as a practical, usable code. The following code meets exactly that specification. The "Manual" referred to will be presented to the December meeting of the N.W.A.H. & A.C. Ass'n in Cleveland. From now on, whenever a city asks for code suggestions, let's submit this one.

Intent of the Code

THIS code is formulated to provide reliable methods of design and installation of warm air winter air conditioning systems for buildings having heat losses not in excess of 150,000 Btu per hour, and is prepared for inclusion in ordinances developed by municipal and local regulatory bodies.

In all cases where the term MANUAL is used, reference is made to the latest edition of the CODE AND MANUAL FOR THE DESIGN AND INSTALLATION OF WARM AIR WINTER AIR-CONDITIONING SYSTEMS, as issued by the NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION, 145 Public Square, Cleveland 14, Ohio.

Article 1 — Definitions

Section 1.

Warm air winter Air-conditioning systems, shall consist of one or more warm air heating units within individual housings, or within one common housing, one or more motor-driven blowers, smoke or vent pipes, individual leader pipe or trunk line systems, or both, with necessary control dampers for warm air and return air lines, automatic controls, registers and intakes; and other appurtenances, such as air filters, air washers, humidifiers, etc., as may be required.

Section 2.

A trunk line system consists of one or more main ducts with branches.

Section 3.

An individual supply system shall consist of separate ducts of round or rectangular cross section extending from the heating unit.

Section 4.

Return ducts may be individual or trunk lines, or a combination of both.

Article 2—Estimating Heat Loss From Rooms and Building

Section 1.

The heat loss in Btu per hour from each room to be heated shall be determined in accordance with the approved method given in the Manual, Section A. These values of heat loss are to be used in determining the required standard sizes of warm air and return air ducts, stacks or risers, fittings, registers, and return intakes.

Section 2.

The total heat loss for the building, in Btu per hour, is the sum of the room heat losses, and is used in estimating the sizes and capacities of the furnaces, blowers, filters, etc.

Article 3 — Selection of the Furnace

Section 1.

The furnace shall be selected to satisfy the maximum hourly Btu requirements of the building, in accordance with the method specified in the Manual, Section B.

Section 2.

All furnaces shall be rated in accordance with existing codes and methods recognized by the National Warm Air Heating and Air Conditioning Association.

Ratings shall include:

(a) Bonnet Capacity, in Btu per hour, and

(b) Register Delivery, in Btu per hour.

Article 4 — Selection of Ducts, Registers, and Intakes

Section 1.

The selection of branches, risers, fittings, registers, intakes, and trunk ducts shall be made in accordance with the standard method, outlined in the Manual, Sections C through G.

Section 2.

Insofar as conditions permit, the standard sizes of ducts, fittings, registers and intakes shown in Sections E and F of the Manual shall be used.

Article 5 — Construction Details

Section 1.

Wall stacks (up to and including 14 in. in width).

Wall stacks shall be constructed of galvanized iron sheets, 30 gauge or heavier. If slip joints are used they shall be stripped with asbestos paper. Where

stack heads, boots, or other fittings, either for warm air or return air, go through first floor, all openings around such fittings shall be filled with asbestos fiber or other non-combustible insulating material to make this opening dust tight. (See requirements of Fire Underwriters.)

Section 2.

Headers—Tight headers must be installed above all openings for stack heads and return air intakes. (See requirements of Fire Underwriters.)

Section 3.

Round Pipe—Round pipe shall be constructed of galvanized iron:

Up to and including 12 in., not lighter than 30 gauge.

Up to and including 24 in., not lighter than 26 gauge.

If slip joints are used, joints shall be stripped with asbestos paper.

Section 4.

Rectangular Ducts

Rectangular ducts shall be constructed of galvanized iron:

Up to and including 14 in. wide, not lighter than 28 gauge.

Up to and including 36 in. wide, not lighter than 26 gauge.

Wider than 36 in. wide, not lighter than 24 gauge.

All duct sections 24 in. or wider and over 48 in. in length shall be cross broke on top and bottom and shall have standing seams or angle iron braces. All joints shall be S and drive strip, or locked.

No warm air duct, round or rectangular, shall come in contact with masonry walls. Insulate around all warm air ducts through masonry walls with not less than ½ in. of insulation.

It is not the intention of this Section to eliminate the use of other satisfactory, non-combustible materials in the construction of ducts.

Section 5.

Return Air Liners

Bottoms of all return air joist spaces shall be lined with smooth, air-tight material. All cross bracing should be removed and joists properly reinforced.

Section 6.

Insulation of Ducts

All exposed warm air ducts passing through an unheated room shall be insulated with not less than ½ in. of insulation. Ducts located in cold attic spaces or cold exposed basement spaces shall be insulated with at least 1 in. thickness of insulation.

Section 7.

Duct Supports

All ducts shall be securely suspended from adjacent building members. No nails shall be driven through duct or stack walls, and no unnecessary holes shall be cut therein.

Section 8.

Volume Dampers

Volume dampers of locking type shall be placed in each warm air run. These may be placed near the main trunk or in the stackhead. Return air ducts and outside air inlet ducts shall be similarly equipped with volume dampers.

Article 6 — Control Equipment

Section 1.

Blower Controls

An adjustable automatic fan or blower switch shall be placed in the bonnet of the furnace to start and stop the blower at predetermined air temperatures. The location of the switch and the adjustment of the setting shall be made according to the recommendations in the Manual, Section H, unless manufacturer's instructions specify otherwise.

Section 2.

Summer Switch

Unless automatically controlled, a manual switch for summer operation may be placed in the hallway or other accessible location, but must not be placed where it is liable to be turned by mistake.

This switch shall be wired so that it operates the blower independent of the bonnet control.

Section 3.

Limit Control

A limit control shall be used in conjnction with any automatic temperature control, to prevent overheating of the heater unit. This control shall be so constructed that the temperature of the air in the bonnet cannot exceed about 200 deg. F. The usual setting is about 175 deg. F.

Section 4.

Coal, Hand-Fired Furnace.

In addition to the blower switch and limit control, a room thermostat shall be used which operates a damper motor. Damper motors that have current failure protection are preferred types.

Section 5.

Coal, Stoker-Fired Furnace

In addition to the blower switch and the limit control, the controls for a stoker-fired furnace shall consist of a room thermostat, a relay for operating the stoker motor, a barometric draft regulator, and some form of hold-fire control.

Section 6.

Oil Fired Furnace

In addition to the blower switch and limit control, the controls for an oil fired furnace shall consist of a room thermostat and an approved ignition control.

Section 7.

Gas Fired Furnace

In addition to the blower switch and limit control, the controls for a gas fired furnace shall consist of a room thermostat and approved gas valve and pilot safety control.

Section 8.

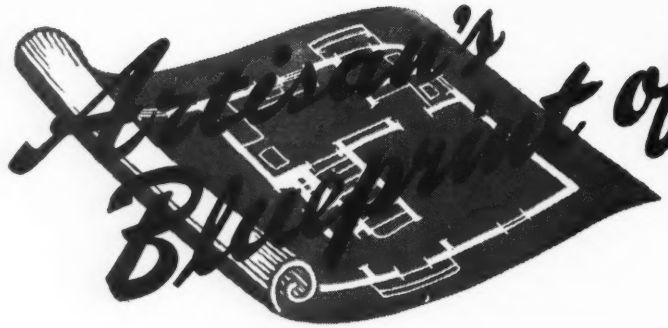
Zone Controls

Zone control equipment consists of two or more room thermostats, operating dampers in warm air ducts leading to various portions or zones of the building. Manufacturer's instructions shall be followed in the installation of zone control equipment.

Section 9.

Electric Circuit for Heating Equipment Only

The owner shall furnish a separate electrical circuit of proper voltage and capacity to be run from the house service to a separate panel. This panel shall be for *heating equipment only.*



Blueprint of POST-WAR Heating

Ideas, Equipment, Installations which may find acceptance in new houses and modernization

Open Basement Return Air Plenum

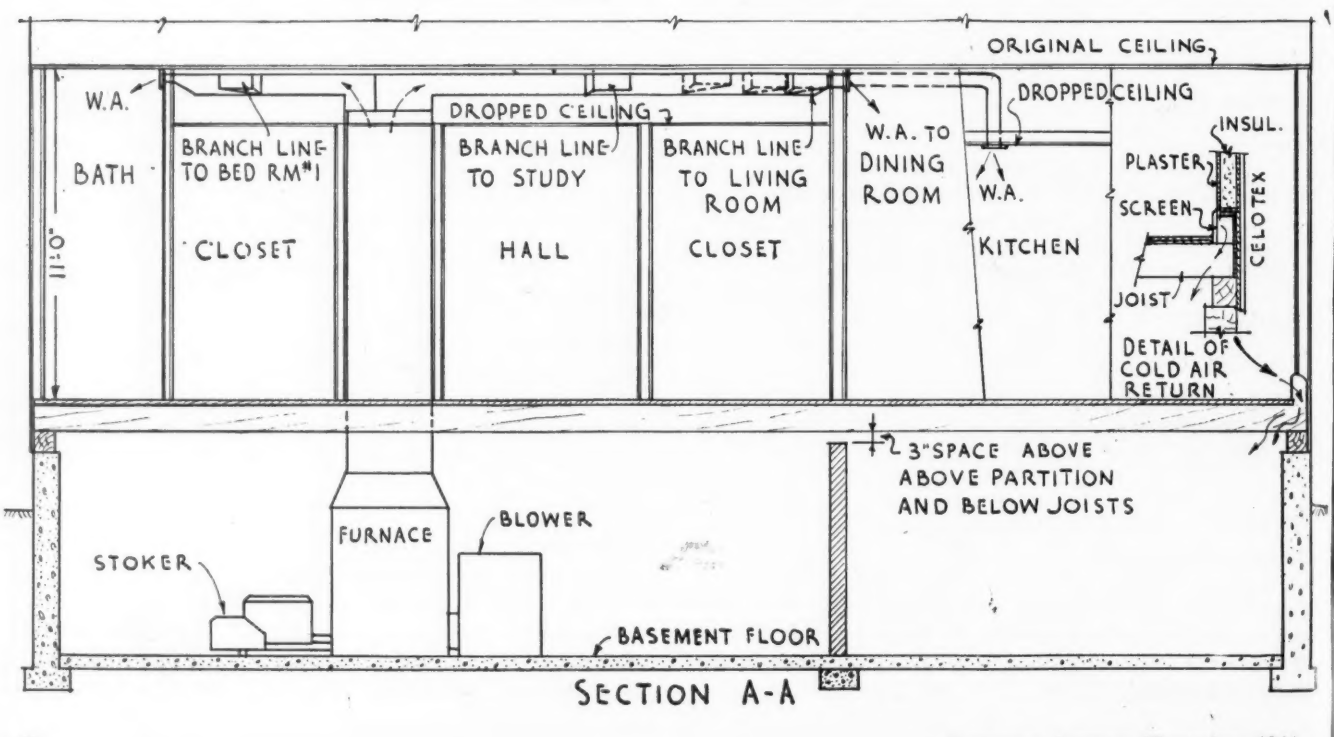
IN HIS own home, R. E. Bressler, Chief Engineer, Kol-Master Corporation, Oregon, Ill., has a stoker-fired, forced warm air heating system which attains the two desirable characteristics of uniform comfort and fuel economy by using the entire basement as an open return air plenum and the employment of two thermostats—one to maintain comfort at the 5-foot level and the other to keeps the floors warm.

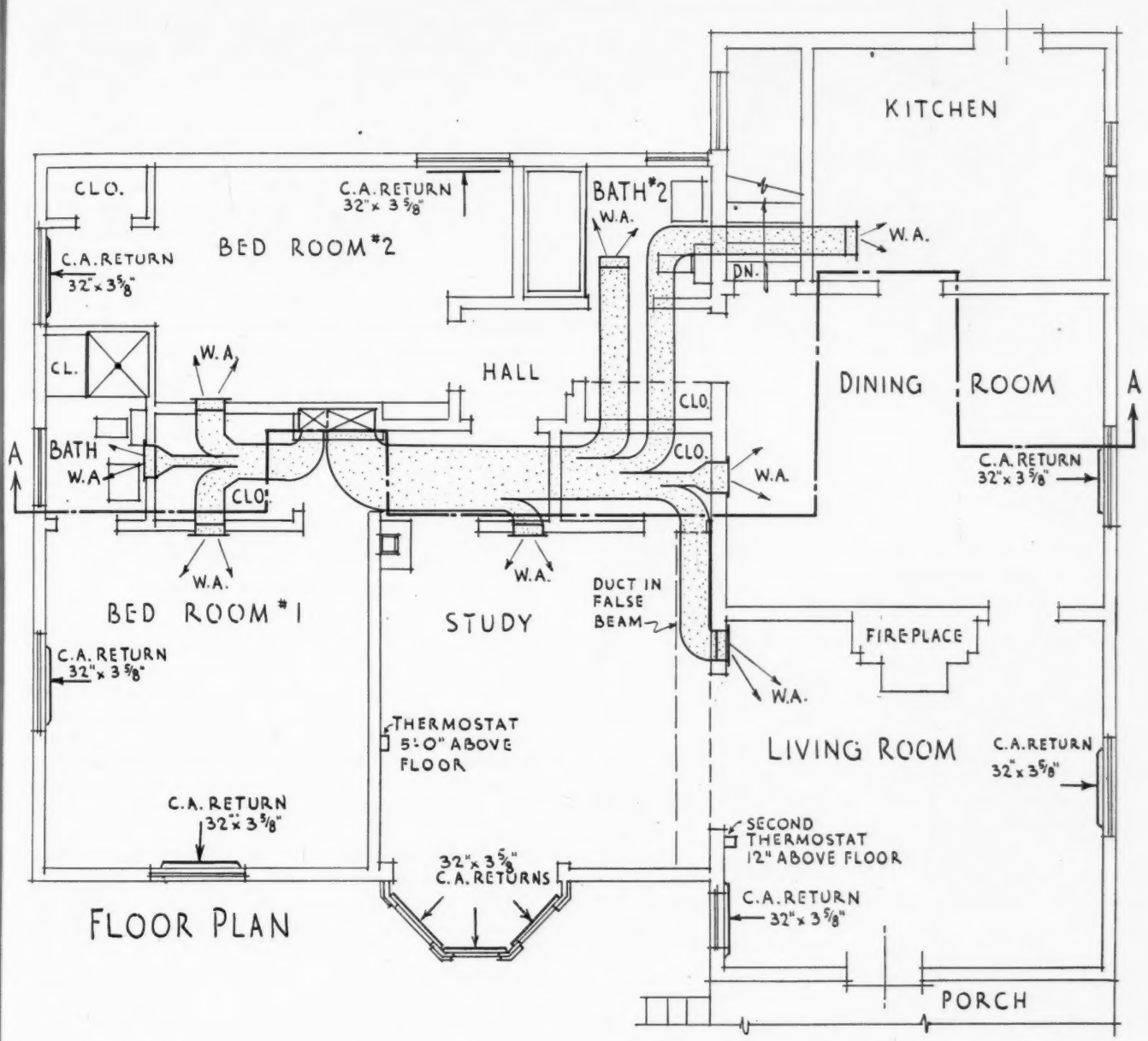
Evidence of fuel economy is shown by the fuel bills. When the house was heated by a gravity furnace, 23 to 25 tons of coal were used; when the forced air system with one thermostat was installed, fuel consumption dropped to 14 tons for each of two winters; with two thermostats the fuel requirement has dropped to 12 to 12½ tons per season.

The final design of the system is a combination of original planning plus improvements added as a need for betterment disclosed itself. For a complete understanding of this statement, the system must be traced back to its inception.

The house is some 80 years old and for many years was heated with stoves. Then an owner installed a central gravity furnace in a small excavation, using 14 warm air and return air openings with the supply registers in the floor and the returns piped to the furnace. The installation was better than the stoves, but the owner spent many hundreds of dollars "fussing" with the system and still did not obtain the kind of heat desired.

When Mr. Bressler bought the house, he practically rebuilt the interior in an effort to get closets, halls and other facilities. Advantage was taken of this reconstruction, and of the 11-foot ceilings, to place the entire warm air distribution system between a new ceiling in the hall and the original ceiling. As the floor plan shows, the warm air trunk rises from the bonnet as a stack to the ceiling space and there divides into two mains with branches connecting with registers which are just below the ceiling line or 10 feet, 6 inches above the floor. All this supply ductwork is between the two ceilings or through closets. The ducts are not insulated, but the floor of the attic is completely insulated with 4 inches of Rock Wool, so there is no heat loss.





All registers are in the high side wall excepting one in the kitchen and one in bath No. 2, where ceiling registers are used. All wall registers can be adjusted vertically and diffusion is arranged straight forward from the center and to the right or left or both as needed. Mr. Bressler does not attach much importance to diffusion; he believes that the return air system, which will be described quickly, has most to do with the results.

The duct system was sized for a velocity of 500 feet per minute, but the blower is adjustable within a range of 1,000 feet to 400 feet per minute. All branch ducts have volume dampers, but when the system was first started, all dampers were wide open and have not been changed since. Mr. Bressler's theory is that the colder the room the greater is the return flow and the air delivery adjusts itself. Also interesting is Mr. Bressler's statement that with the fan stopped there is enough gravity flow to keep the house warm with only 150 degrees temperature in the bonnet and with the filters in place. The stack effect of the large riser and the absence of all resistance on the return side are credited with this result.

The two ceiling registers are adjusted so that the air does not "shoot" straight down, but is diffused outward and Mr. Bressler expresses the opinion that such ceiling registers are more satisfactory than side wall registers because the induced room air currents created by high velocity air from side wall registers carries dust against the ceiling to streak it whereas ceiling registers eliminate all possibility of streaking either ceiling or walls.

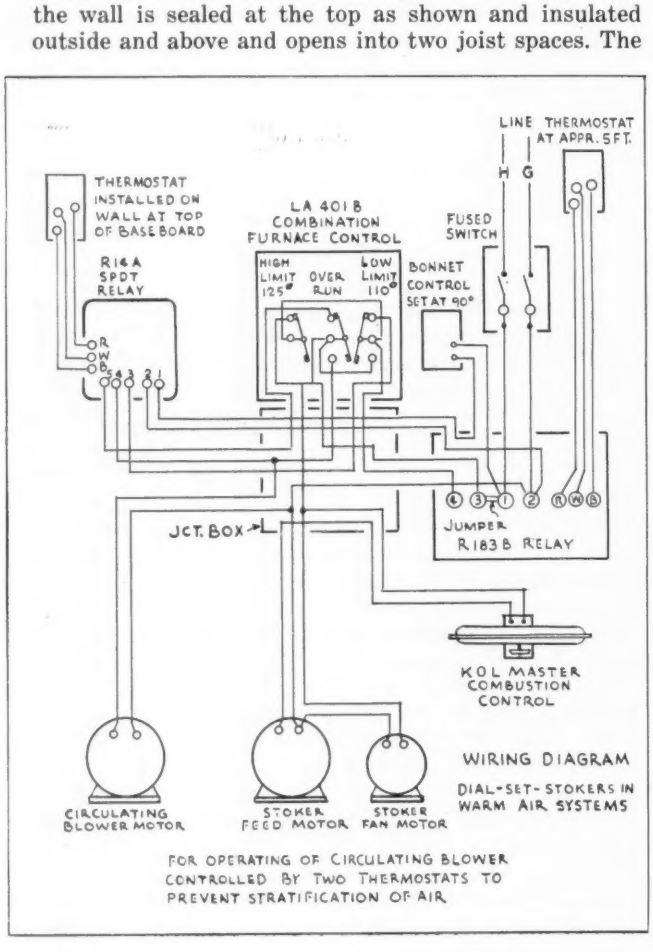
So much for the warm air side—it is the open basement plenum which is interesting in view of the emphasis placed on its effects. As the plan and elevation show, the basement is under the entire house and has only one critical partition. This partition stops 3 inches below the basement ceiling so that air can flow over the partition to the blower. The blower, of course, is housed, but has no piping connected to it.

Mr. Bressler reports as much as .04 to .05 inch of vacuum in the basement when the fan is running, and says:

"This suction in the basement is applied, of course, both at the draft control and at the furnace door or any other opening into the furnace and is consequently balanced. There is no tendency for the suction of the draft control to change because of the suc-

tion or vacuum in the basement. The operation of the entire equipment is, of course, by approximately .05 inch sub-atmospheric, but as that condition exists all about the furnace, it has no effect on the draft adjuster. The only condition which could exist where this sub-atmospheric condition would cause difficulty would be if the stack draft were less than the vacuum in the basement as related to atmospheric pressure. The suction created is so slight that there would not be any chance that such a condition would exist unless the cold air returns were made too small in size, though even then the pressure built up in the rooms by the blower would tend to offset the smaller size of the cold air returns and would force the air into the basement, but the self-balancing feature of the system would be lost."

Under each window of the house (see plan) a 32 by 3⅝ inch cast iron, slotted grille with a 16-gauge galanized iron mesh behind is built into the baseboard as shown on the detail in the elevation. The space in the wall is sealed at the top as shown and insulated outside and above and opens into two joist spaces. The return air thus "spills" into the basement. The flooring is carried to the outside wall over all other joist spaces, thus sealing the stud spaces not used by grilles. As stated before, the critical basement partition ends 3 inches below the bottom of the joists in part of the basement and 3 inches under the basement ceiling where there is a ceiling.


LINE THERMOSTAT AT APPR. 5 FT.
H G
THERMOSTAT INSTALLED ON WALL AT TOP OF BASE BOARD
LA 401 B COMBINATION FURNACE CONTROL
FUSED SWITCH
R14A SPDT RELAY
HIGH LIMIT 125° OVER RUN
LOW LIMIT 110°
BONNET CONTROL SET AT 90°
R W B 4 3 2 1
JCT. BOX
JUMPER
R183B RELAY
KOL MASTER COMBUSTION CONTROL
WIRING DIAGRAM
DIAL-SET-STOKERS IN WARM AIR SYSTEMS
CIRCULATING BLOWER MOTOR
STOKER FEED MOTOR
STOKER FAN MOTOR
FOR OPERATING OF CIRCULATING BLOWER CONTROLLED BY TWO THERMOSTATS TO PREVENT STRATIFICATION OF AIR

It is Mr. Bressler's opinion that this use of the entire basement as a plenum automatically balances heat delivery into the rooms above. For example, if because of sun heat on one side of the house certain rooms need heat less, the flow of return air from those rooms is decreased and loss and supply tend to balance. If one side of the house is cold from wind, the loss is increased, the air cools faster, the air flows out of the room more rapidly, and the supply thereby automatically increases due to the reduced pressure in the room.

Guests, says the owner, comment on the absence of air movement and uniformity of temperature. Air from the registers, at low velocity, seems to "float" across the ceiling toward the outside wall. Cold air at the wall or window drops to the floor and enters the return without spreading across the floor.

Two Thermostat Control

The one factor which it was thought could stand improvement, says Mr. Bressler, was the difference in temperature between floor and ceiling which varied between times when the stoker started and stopped and stopped and started. To improve this, a second thermostat was installed in the living room 12 inches above the floor; the first thermostat is in the study 5 feet above the floor. This second thermostat has reduced stratification and maintains even flow temperatures.

The wiring diagram is reproduced. Mr. Bressler explains the wiring diagram as follows:

"The LA401-B combination furnace control is a standard control of Minneapolis-Honeywell manufacture but is used for additional purposes from the ones described in their advertising material. Following the wiring diagram will show that in addition to the low limit control for the furnace blower, high limit control for the stoker and overrun control for the furnace blower, we also utilize this control for a hold-fire control which operates the stoker when the switch used for the low limit control is in its 'off' position and thus maintain the bonnet temperature of the furnace so that the blower will always start when the thermostat calls for heat. With this arrangement and because of the differential in the low limit control, the stoker will start when the bonnet temperature drops to 90 deg. and will stop when the temperature reaches 110 deg. We also have a hold-fire timer in the R183B relay operating the stoker one minute each half hour.

"The unit shown on the wiring diagram as 'bonnet control' set at 90 deg. is in series with the R14A relay so that should the fire go out and the bonnet temperature drop below 90 deg., as would be maintained by the hold-fire control, the circulating blower will stop, so that no cold air will be circulated.

"The limit control on the furnace for standard operation with regulation thermostat is set at 125 deg. maximum temperature and the limit control used in connection with the second thermostat is also used to maintain a minimum bonnet temperature of 90 deg. so that should the blower not be in operation and the temperature in the bonnet of the furnace drop to 90

(*Continued on page* 114)

You'll Be Interested in This—

WPB Wants Us To Use Aluminum for Furnace Pipe and Smoke Pipe

And in amended P-55-c (reported in this issue) aluminum and magnesium are offered by WPB for warm air distribution systems if we can't find idle or excess steel and if we don't want to use non-metallic materials.

SOME weeks ago Industry Advisory Committees of the furnace and stove pipe manufacturers were asked by WPB to consider the possibility of using aluminum for smoke pipe and furnace pipe. A report reaching AMERICAN ARTISAN stated that the manufacturers were pretty much agreed that aluminum is not satisfactory for smoke pipe, but that aluminum for furnace pipe might be a possibility.

In an effort to determine what may be expected, a questionnaire was mailed to manufacturers asking five questions. Following are the questions and the composite answers:

Question 1—Have you heard anything about this development or have you been asked by your WPB representative to consider aluminum?

Answer—Of eleven firms answering, seven said they had heard about the use of aluminum and four had heard nothing. Five firms have been asked by WPB to consider aluminum and six firms have not been asked.

Question 2—Have you ever made any furnace pipe and fittings from aluminum and, if so, what has been your experience?

Answer—Only two of the eleven firms replying have made pipe from aluminum. One of these firms states that after much experience with aluminum airplane parts, it is convinced that aluminum will never work to advantage for pipe. Also that light gauge aluminum won't stand the abuse of shipping. Finally, that the price of aluminum is far out of line and that from the shipping angle it will be impossible to ship aluminum and fabricated fittings because the difference in freight rates will be tremendous.

The other firm with experience, by contrast, states that its experience with aluminum for pipe and fittings—from a production standpoint—has been exceptionally good. If the price of aluminum and the supply is comparable there should be no reason why aluminum pipe and fittings cannot be used for practically all gravity and forced air piping—but not smoke pipe unless some new alloys are introduced. This firm says aluminum makes beautiful pipe and is very workable. The catch to the proposition, says this firm, is that aluminum now costs 35 cents per pound.

Question 3—If you have not made aluminum pipe and fittings, but have fabricated aluminum for other products, what is your opinion of the possibilities of aluminum for furnace pipe and fittings?

Answer—Four firms have never fabricated any product of aluminum. Three firms have made other aluminum products and feel that aluminum is practical for furnace pipe—from a production standpoint. Two firms have made other aluminum products and believe aluminum is not satisfactory for furnace pipe. One firm has made aluminum products, but states its experience shows aluminum too costly to work and without any advantages.

Question 4—Assuming that aluminum is plentiful after the war and is fairly comparable in price with galvanized iron, do you think you will use aluminum for furnace pipe?

Answer—Five firms think aluminum will be used under the conditions. One firm says, "perhaps in a limited degree." Three firms say "no," they won't consider aluminum. Two firms say the conditions "just can't be" because if aluminum is plentiful galvanized iron will be still more plentiful and if aluminum is "cheap" galvanized iron will be just as much cheaper as it is now or at least cheaper so the price differential will still exist.

Question 5—How much do you think you can pay for aluminum for it to be competitive?

Answer—One manufacturer said aluminum must sell at 11 cents per pound. Another suggests less than 15 cents per pound. Two manufacturers say aluminum must sell for less than galvanized iron to be acceptable. Three manufacturers say "about the same price per pound." Two manufacturers say aluminum must be the same price as galvanized iron. One manufacturer says "same or less."

Three supplementary notations are interesting—One manufacturer says all this discussion arose because of idle stocks of airplane aluminum which can be riveted and punched but not formed and therefore is not suited to pipe work. This same manufacturer also points out that aluminum has a rapid heat transmission, hence heat loss from ducts would be far higher than we now encounter with galvanized and black iron.

A second manufacturer says he checked with aluminum producer and was quoted 35 cents per pound in car load quantities—this compares with 3½ to 3¾ cents for galvanized in 24 gauge. This manufacturer believes there should be sales appeal in polished aluminum ducts which are exposed, but asks could the price differential be overcome?

The third manufacturer points out that aluminum must be heat treated, refrigerated in forming and requires different dies and forming technique—all of which is not justified by the returns—unless aluminum is "really cheap."

So it looks as though aluminum furnace pipe and fittings is not an immediate prospect.

American Artisan Dealers Report on Plans for Selling the Post War Market

THE two studies of sales of Controls and Filters which follow, are the last of the reports compiled from questionnaires received from American Artisan readers. This 8-page questionnaire, mailed last spring to about 1,000 readers—brought back some 300 usable replies from which 14 studies were tabulated and reported as follows:

In June, a study of our Manpower problems and two studies on how readers service Filters and Blowers. In July, three studies of service programs for Controls, Oil Burners, Stokers. In August, there were two studies of service programs for Furnace Cleaning and Gas Burning Equipment. In September, the first two studies of what dealers sold before the war and what they expect to sell post-war (and how much) covered Oil Burners and Gas Burning Equipment. In October, two sales studies covered Stokers and Blowers. This month, November, completes the series with studies of pre-war and post-war sales of Controls and Filters.

The idea behind this series of first-hand studies was two-fold: first, to show how readers operate their service programs (how they sell, how much they charge, what they do); second, to report what dealers expect to sell, and how, after the war as compared with what they did pre-war.

No attempt was made to control these reports—replies were received and tabulated from dealers operating in very small communities—and in large cities—some dealers are "large operators", others are quite "small." A complete cross section was not sought nor obtained from every part of the country—but, in general, a true cross section is believed presented from the great warm air heating sections of the country.

As for the usefulness of these studies—the first eight studies should enable any reader to compare his selling prices and what he does with prices and service from comparable communities and operators. If any reader wishes to bring his service up to an "average" service, these studies should enable him to do so. In the last six studies, there is set forth plainly what these readers did before the war and what they plan to do after the war. If any reader is in doubt as to whether or not he puts as much effort in sales as he should, or if he wonders what other dealers are planning to do after the war—the answer should be available.

It is too late in the progress of the war to expect that any such studies as these will influence manpower authorities to recognize tangibly our place in our communities and endeavor to "ease" our manpower problems; and there does not seem to be any "relief" to be expected from material shortages, if any. We will get relief in manpower as more and more service men are returned and as more and more workers are released from war plants. We are "over the hill" on manpower. And materials, generally, are coming into increased supply, although the increase is decidedly spotty. But here, again, we seem to be "over the hill".

From now on every reader should lay plans for plenty of men and plenty of material—these studies can be used to point the way on how to use them.

To the several hundred readers who generously gave of their time to fill in and return these questionnaires—our thanks.

NOT as many furnace dealers as might be thought, specify the make of controls they get when they place orders for complete furnace units, oil burners, stokers and gas burners. This is somewhat surprising in view of the fact that many manufacturers offer a choice of controls and many dealers express definite likes and dislikes for controls—depending on their experiences with various instruments. Trouble might be minimized if dealers would ask for the instruments they find most satisfactory. Columns 6, 7, 8, 9 of the study below, indicate that our industry can do much more—if it chooses—to sell damper motor sets and barometric dampers as fuel saving devices. That we haven't done more, is no doubt due to a severe lack of sales and installation manpower. Columns 6 and 7 show that some dealers tried to sell more of these units in 1944 than in 1943—others found themselves too handicapped to do so. As manpower eases, sales of these profitable and desirable devices will no doubt increase.

CONTROLS

STATE and CITY	Do You DESIGNATE the MAKE of Controls You Wish Furnished on Your y = yes; n = no				How Many DAMPER-MOTOR Sets for GRAVITY Coal-Fired Furnaces Did You Sell or Expect to Sell in—		How Many BAROMETRIC Dampers Did You Sell or Expect to Sell in—		Parts Carried in Stock for Service, and How Many?					
	Complete Furnace Unit?	Conversion Oil Burners?	Conversion Stokers?	Conversion Gas Burners?	1943?	1944?	1943?	1944?	Thermostats	Damper Motors	Limit Controls	Fan Controls	Relays	Transformers
ALABAMA														
Montgomery	y	y	y	y	0	0	6	?	6	0	3	3	3	0
ARIZONA														
Phoenix	y	y	....	....	6	....	2	....	6	0	2	2	....	2
Tucson	y	y	....	y	0	0	50	0	6	0	6	6	6	6
ARKANSAS														
Paragould	y	y	y	....	0	0	0	....	0	0	0	0	0	0
CALIFORNIA														
Bakersfield	y	....	....	....	0	0	0	0	....	....	....	....	....	....
Eureka[3]	n	n	....	n	0	....	24	24	4	1	1	1	1	2
Martinez	n	....	....	....	0	....	0	....	9	0	4	4	0	4
Oakland	y	y	....	....	....	....	....	....	250	....	75	75	25	25
San Mateo	y	y	....	....	....	....	....	....	2	0	2	1	2	2
CONNECTICUT														
Waterbury	n	y	....	....	5	10	0	0	3	....	3	3	2	0
DELAWARE														
Laurel	y	y	....	....	10	50	12	?	6	2	6	8	4	4
ILLINOIS														
Belleville	y	....	....	....	21	30	150	150	6	6	6	6	6	6
Chicago	n	n	n	....	few[1]	200	few	....[2]	....[3]	....[3]	....[3]	....[3]	....[3]	....[3]
Elmhurst	n	n	n	n	....	....	20	10	6	....	4	2	8	15
Forest Park	y	n	n	n	39	50	15	25	2	2	2	2	0	2
Highland Park	y	....	y	....	6	12[4]	24	24	3	6	2	2	2	0
Jacksonville	n	n	n	n	6	6[4]	24	24	2	0	2	2	1	0
Kankakee	n	n	n	n	3	5	2	4	1	1	1	1	1	1
Lincoln	y	....	y	....	0	....	0	....	3	0	6	6	0	0
Mattoon	y	....	y	n	4	....	....	....	6	3	2	6	2	6
Moline	n	n	n	n	4	....	34	50	0	0	0	0	0	0
Naperville	y	y	y	y	14	24	12	12	3	3	3	3	0	4
Ottawa	n	n	n	n	20	20	36	50	10	....	10	10	10	10
Paris	....	....	....	....	0	....	0	....	3	0	1	0	1	1
Peoria	....	....	....	....	....	....	....	....	6	3	4	6	2	3
Quincy	y	y	y	y	....	....	12	more	....	....	....	....	....	....
Rock Island	y	y	y	y	0	?	25	?	8	2	6	3	3	3
Sheldon	y	....	y	....	0	?	0	?	0	....	....	....	....	....
Wilmette	y	y	y	y	3	?	12	12	12	2	4	4	2	4
INDIANA														
Brazil	n	....	....	....	0	6	12	20	0	0	0	0	0	0
Columbia City	n	n	n	n	....[1]	12	0	?	3	1	1	3	....	....
Fort Wayne	....[5]	....[5]	....[5]	....[5]	20	20	few[6]	....	9	8	9	9	4	8
Fort Wayne	y	y	y	y	75	50	0	0	0	0	0	0	0	0
Fort Wayne	n	n	n	n	95	150	50	75	12	12	12	12	4	5
Hammond	n	n	n	n	12	12	0	....	....	....	....	....	....	....
Indianapolis	y	....[7]	....[7]	....[7]	2	50	12	more	1	1	3	5	1	1
La Porte	y	y	y	y	25	25	25	50	2	0	1	0	3	3
Marion	y	y	y	y	6	3	35	15	13	4	4	4	4	2
Terre Haute	y	y	y	....	....	....	....	....	....	....	....	....	....	....
Vincennes	n	n	n	n	5	15	10	20	6	6	6	2	2	2

STATE and CITY	Do You DESIGNATE the MAKE of Controls You Wish Furnished on Your y = yes; n = no				How Many DAMPER-MOTOR Sets for GRAVITY Coal-Fired Furnaces Did You Sell or Expect to Sell in—		How Many BAROMETRIC Dampers Did You Sell or Expect to Sell in—		Parts Carried in Stock for Service, and How Many?					
	Complete Furnace Unit?	Conversion Oil Burners?	Conversion Stokers?	Conversion Gas Burners?	1943?	1944?	1943?	1944?	Thermostats	Damper Motors	Limit Controls	Fan Controls	Relays	Transformers
IOWA														
Cedar Rapids	n	n	n	n	0	12	8	12	0	0	0	0	0	0
Davenport	n	n	n	n	8	6	120	?	24	0	6	4	6	0
Davenport	y	y	y	y	2	2	30	35	....	....	....	....	....	....
Des Moines	y	y	y	....	0	10	30	40	....	....	....	....	....	....
Marshalltown	n[7]	n[7]	n[7]	n[7]	12	?	....	....	....	....	....	....	....	....
Mason City	y	y	y	y	0	....	20	20	2	0	2	2	1	2
Mason City	n	n	n	n	0	0	0	0	2	0	2	2	0	0
Sioux City	n	n	n	....	0	....	12	0	....	....	....	....	....	....
Sioux City	y	n	n	n	6	10	12	20	3	1	2	3	0	0
Spencer	y	y	y	y	....	....	....	....	....	....	....	....	....	....
Waterloo	y	y	y	y	3	more[8]	0	....	3	1	2	2	1	2
Waterloo	y	n	y	....	0	0	200	100	12	0	10	5	15	10
Webster City	n	n	n	....	?	?	0	0	3	0	1	2	1	2
KENTUCKY														
Louisville	n	n	n	n	10	0	0	0	0	0	0	0	0	0
MASSACHUSETTS														
North Scituate	y	y	....	....	0	0	21	25	20	1	50	5	15	20
Worcester	y	y	y	y	6	50	20	20	25	2	20	0	4	2
MICHIGAN														
Adrian	....	....	....	....	50	50	50	50	3	2	2	1	3	1
Ann Arbor	y	y	y	y	4	?	12	?	2	1	4	2	4	2
Battle Creek	....	....	....	....	50	75	25	25	6	3	6	5	3	5
Dearborn	y	y	y	y	50	63	100	150	10	10	10	10	5	10
Detroit	y	y	y	y	50	50	0	0	....	....	....	....	....	....
Detroit	y	y	y	y	5	50	0	100	5	0	3	3	2	2
Escanaba	n	n	n	n	0	4	6	6	1	1	1	1	1	....
Flint	y	y	y	y	24	40	18	18	18	18	18	6	3	18
Flint	n	n	n	....	63	more[8]	20	25	5	5	11	6	3	5
Grand Rapids	n	....	....	....	12	more[8]	....	....	....	....	....	....	....	....
Highland Park	y	y	y	y	31	25	80	100	12	12	20	24	6	12
Kalamazoo	n	....	....	....	15	15	10	....	....	....	....	....	....	....
Kalamazoo	y	y	n	....	20	25	0	0	6	3	6	6	10	8
Lansing	n	n	n	n	35	35	7	15	15	15	6	6	3	6
Muskegon	n	n	n	n	?	?	?	?	4	4	12	4	2	12
New Buffalo	y	y	....	....	8	12	12	10	1	1	2	1	1	1
Saginaw	y	y	y	y	10	20	25	25	12	1	10	10	1	6
Saginaw	y	y	y	y	0	38	6	25	2	0	2	2	2	0
Sebewaing	y	y	y	....	15	20	0	0	4	2	3	2	3	2
MINNESOTA														
East Grand Forks	y	y	....	....	5	10	15	15	3	....	3	6	3	2
Minneapolis	y	y	y	y	12	0	18	18	6	0	4	4	4	6
Tracy	n	n	n	n	0	0	0	0	3	0	3	3	3	3
MISSOURI														
Joplin	y	y	y	y	1	0	4	6	2	0	1	3	2	2
Kansas City	y	y	y	y	2	....	0	0	....	....	....	....	....	....
Kansas City	y	y	y	y	25	33	25	....	18	12	6	12	....	12
St. Louis	....	....	n	....	0	0	45	45	1	0	1	1	2	0
St. Louis	y	....	....	....	0	0	0	0	6	0	10	10	2	20
St. Louis	y	....	....	....	0	0	25	50	6	0	6	6	6	6
MONTANA														
Great Falls	....	....	....	y	0	....	0	0	10	2	6	6	3	6
NEBRASKA														
Lincoln	n	n	n	n	4	....	10	10	10	0	10	10	3	6
Lincoln	....	....	....	....	....	....	....	....	....	....	....	2	1	....
North Platte	n	n	n	n	3	10	24	36	10	0	10	4	2	10
Omaha	n	n	n	n	0	12	150	200	40	3	20	15	15	12
Omaha	y	y	y	y	2	4	15	15	12	4	12	12	4	4
Scottsbluff	y	y	....	....	0	0	14	12	5	0	3	2	2	0
NEW HAMPSHIRE														
Manchester	n	n	n	....	6	12	25	40	12	3	12	6	6	6
NEW JERSEY														
Bogota	y	y	y	y	300	?	100	?	6	0	12	24	12	6
Penns Grove	y	y	y	....	0	....	15	15	1	....	1	1	1	2
NEW YORK														
Buffalo	n	n	n	n	10	10	....	....	0[9]	0[9]	0[9]	0[9]	0[9]	0[9]
Buffalo	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Elmira	y	....	....	y	12	?	0	....	5	2	5	5	....	6
Kingston	n	n	n	n	0	0	0	0	2	0	2	2	0	2
Newburgh	y	y	....	....	0	0	0	0	2	0	2	2	2	2
Olean	n	n	n	n	6	6	4	10	0	0	0	0	0	0
Rochester	y	y	y	y	....	....	....	....	....	....	....	....	....	....
Rochester	n	n	n	n	25	45	0	....	....	....	....	....	....	....
Syracuse	y	y	....	....	25	25	9	25	2	2	2	2	1	2
	....	....	....	....	6	24	....	....	6	....	....	....	....	....
NORTH DAKOTA														
Wahpeton	y	y	y	....	8	8	10	10	4	0	3	2	1	1

STATE and CITY	Do You DESIGNATE the MAKE of Controls You Wish Furnished on Your y = yes; n = no				How Many DAMPER-MOTOR Sets for GRAVITY Coal-Fired Furnaces Did You Sell or Expect to Sell in—		How Many BAROMETRIC Dampers Did You Sell or Expect to Sell in—		Parts Carried in Stock for Service, and How Many?					
	Complete Furnace Unit?	Conversion Oil Burners?	Conversion Stokers?	Conversion Gas Burners?	1943?	1944?	1943?	1944?	Thermostats	Damper Motors	Limit Controls	Fan Controls	Relays	Transformers
OHIO														
Ashland	y	y	y	y	10	20	2	6	6	6	6	2	0	6
Barberton	n	n	n	n	0	25	0	0	6	1	2	6	1	5
Big Prairie	y	....	y	....	8	10	0	....	1	0	1	1	0	1
Canton	n	....	....	....	10	?	0	0	....	....	....	....	....	....
Cleveland	y	y	y	y	0	0	0	0	0	0	0	....	....	....
Cleveland	y	y	y	y	100	100	....	....	20	....	20	....	....	5
Columbus	n	n	n	n	24	....	15	10	5	2	6	3	....	5
Columbus	n	n	n	n	75	100	144	100	12	6	12	12	4	6
Columbus	y	y	y	y	0[1]	55	0	0	6	1	6	3	0	6
Dayton	n	n	n	n	25	100	10	100	....	....	....	....	....	....
Dover	y	....	....	....	30	50	10	15	2	2	2	0	0	0
Findlay	y	y	y	n	25	36	36	50	6	2	6	6	3	3
Greenville	....	....	....	....	12	12	....	....	3	1	1	1	1	1
Hamilton	n	n	n	n	11	50	2	25	5	5	5	5	5	5
Lakewood	y	....	....	....	50	50	0	....	....	....	....	....	....	....
Mansfield	y	....	n	n	150	200	25	35	20	4	10	10	2	2
Middletown	y	y	....	....	6	15	0	?	1	1	1	1	1	1
Ravenna	y	y	....	....	0	0	0	0	....	....	....	....	....	....
Sandusky	....	....	....	....	20	?	....	....	2	2	2	2	1	1
Sidney	y	y	y	y	25	6	0	12	1	1	1	1	....	....
Springfield	n	n	n	n	60	48	10	10	1	1	1	1	1	1
Toledo	y	y	y	y	175	188	56	6	20	2	12	12	12	4
Youngstown	n	n	....	n	50	?	6	....	6	6	6	6	6	6
OKLAHOMA														
Oklahoma City	y	y	....	y	0	0	0	0	12	3	6	6	0	12
Tulsa	y	....	....	y	0	0	0	0	6	....	6	6	6	6
PENNSYLVANIA														
Clearfield	n	y	n	....	10	15	20	20	5[10]	3[10]	5[10]	2[10]	6[10]	3[10]
Corry	n	y	y	y	11	5	2	?	2	2	2	1	1	2
Erie	n	n	....	....	35	70	0	0	3	2	3	3	3	4
Hollidaysburg	....	....	....	....	20	20	4	?	....	....	....	....	....	....
Latrobe	y	....	....	....	36	72	....	....	3	3	1	1	....	2
Meadville	y	....	....	....	20	15	0	?	2	2	2	2	2	2
Mechanicsburg	n	n	n	n	0	0	0	0	1	0	1	1	2	3
Pittsburgh	n	n	n	n	0	0	0	0	....	....	....	....	....	....
Pittsburgh	n	n	n	n	6	?	0	....	3	3	3	3	6	6
Pittsburgh	y	....	....	y	0	0	0	0	10	4	10	10	5	10
Reading	y	y	y	y	20	35	30	50	10	10	20	4	10	10
Rimersburg	n	....	n	n	40	70	20	40	15	15	15	15	2	4
Sharon	n	....	....	....	6	?	0	....	....	....	....	....	....	....
Tarentum	y	n	y	y	80	85	0	5	50	40	6	6	1	5
SOUTH DAKOTA														
Rapid City	y	y	y	y	2	0	100	50	0	0	0	0	0	0
Yankton	y	y	y	y	0	0	12	6	4	0	2	2	1	6
TEXAS														
Dallas	y	....	....	....	0	0	0	0	6	3	6	2	6	12
Houston	y	....	....	....	0	0	0	0	50	2	12	10	2	10
San Antonio	y	y	....	....	0	0	0	0	12	....	4	2	....	10
VERMONT														
Lyndonville	n	n	....	....	6	2	10	10	2	1	6	1	parts	2
WASHINGTON														
Seattle	n	n	n	n	150	250	100	100	100	12	30	42	20	20
Morgantown	y	....	....	....	36	50	0	0	3	6	2	2	0	0
WISCONSIN														
Beaver Dam	n	n	n	n	3	4	0	0	0	0	1	1	1	....
Jackson	....	....	n	....	10	15	10	10	12	2	12	12	2	1
Madison	y	y	....	....	15	20	60	75	2	1	6	6	2	6
Milwaukee	n	n	n	n	15	20	5	10	....	....	....	....	....	....
Milwaukee	y	y	y	y	42	50	21	25	6	6	6	6	2	8
Milwaukee	y	y	y	n	55	125	25	38	4	2	2	2	2	2
Oconomoc	y	y	....	....	0	0	6	10	0	0	1	1	1	0
Rhinelander	y	y	y	....	4	10	8	10	5	0	6	6	....	....
Shawano	n	n	n	....	3	3	4	4	1	1	1	1	1	1
Superior	y	y	y	....	10	....	15	25	....	....	....	....	....	....
Two Rivers	y	y	n	....	0	....	6	....	2	....	2	2	2	0
Waukesha	y	y	y	y	4	4	0	0	1	1	1	1	1	2
Wausau	n	n	n	n	20	30	12	20	6	6	6	6	2	6
WYOMING														
Sheridan	....	....	....	n	5	0	0	0	1	1	2	2	0	0

Notes

[1] = Could not get them.
[2] = Sold usually with new jobs.
[3] = Each service man carries a supply in service truck.
[4] = If available.
[5] = Best made are none too good.
[6] = No profit—sell only with new smoke pipe job.
[7] = Come with unit.
[8] = All I can get.
[9] = Stocks quickly available.
[10] = Types.

THE study of contractors' sales of filters below shows one surprising fact—that practically every heating dealer operates a sales program to sell filters as replacement and practically every dealer expects to continue this sale program after the war. The number of filter units sold (column 4) and the number of filters carried in stock (column 5) show tremendous numbers of filters sold. Without much doubt this showing of sales proves conclusively that warm air furnace dealers are the most important source of sales to manufacturers. Columns 11, 12, 13 show that most sales are made to homeowners—this has been, and will be, our primary market. Commercial uses of filters are growing—and furnace dealers are going after this market. Warm air furnace dealers haven't put much effort on the sale of "permanent" filters (columns 14, 15, 16)—what they will do post-war is not indicated.

FILTERS

STATE and CITY	1. Did You Sell Filters as a SEPARATE Service BEFORE the War?	2. Will You Sell Filters as a SEPARATE Service AFTER the War?	3. How Many "THROWAWAY" Filters Did You Sell SEPARATELY in 1940?	4. How Many "THROWAWAY" Filters Do You Carry in Stock for Service?	5. What Size "THROWAWAY" Filters Do You Carry in Stock for Service? 16 x 20	16 x 25	20 x 20	20 x 25	20 x 30	6. What % of Your Service Calls (THROWAWAY) Came From? Residences	Commercial	Industrial	7. How Many "PERMANENT" Type Filters Did You Sell in 1943? Residences	Factories	Commercial	8. Where Do You Buy Your Filters for Service? Manufacturer	Jobber	Other
ALABAMA																		
Montgomery	yes	yes	400	150	y	y	y	y	...	90	5	5	0	0	0	y	...	...
ARIZONA																		
Phoenix	yes	yes	55	20	...	y	y	...	...	90	10	0	0	y	y	n	y	...
Tucson	no	no	200	300	?	?	?	?	...	90	10	0	...	...	10	y	...	...
ARKANSAS																		
Paragould	yes	no	48	60	y	y	y	...	...	100	0	0	0	0	0	...	y	...
CALIFORNIA																		
Eureka	yes	yes	48	36	?	?	?	?	...	85	10	5	—(4 doz.)—			...	y	...
Martinez	yes	yes	250	500	...	y	...	...	...	100	0	0	...	18	...	...	y	...
Oakland	yes	yes	.....	500	y	y	y	...	...	90	5	5	—500—		...	...	y	...
San Mateo	yes	yes	200	20	y	y	...	y	...	70	20	10	0	0	0	...	y	...
CONNECTICUT																		
Waterbury	yes	yes	60	100	y	y	y	y	...	95	5	0	20	0	5	...	y	...
DELAWARE																		
Laurel	yes	yes	300	150	y	y	y	y	y	100	0	0	0	0	0	...	y	...
ILLINOIS																		
Belleville	yes	yes	300	300	...	...	...	...	...	80	10	10	y	y	...	...	y	...
Chicago	yes	yes	1,500	1,000	...	y	y	...	...	10	60	30	n	y	y	y	...	...
Chicago	yes	yes	800	800	y	y	y	...	...	90	0	10	n	n	n	y	...	...
Elmhurst	yes	yes	100	30	y	...	y	y	...	98	2	0	n	n	n	...	y	...
Forest Park	yes	yes	150	60	...	y	...	...	y	100	0	0	0	0	0	y	...	...
Highland Park	yes	yes	36	144	y	y	y	y	y	90	9	1	y	...	...	y	y	...
Jacksonville	yes	yes	100	50	y	y	y	y	y	90	10	0	...	...	...	y	y	n
Kankakee	yes	yes	75	60	y	y	y	...	...	90	10	0	0	0	0	y	y	...
Lincoln	yes	yes	120	48	...	y	y	...	...	90	10	0	2	...	...	...	y	...
Mattoon	yes	yes	100	120	y	y	y	...	...	90	10	0	0	0	0	y	...	...
Moline	yes	yes	200	100	...	y	y	...	...	90	10	0	0	0	0	y	...	...
Naperville	no	yes	150	150	y	y	y	...	...	90	10	0	0	0	0	n	y	...
Ottawa	yes	yes	200	144	y	y	y	y	y	100	0	0	0	0	0	y	...	...
Sheldon	yes	yes	20	4	...	...	y	...	...	95	5	0	0	0	0	n	y	...
Wilmette	yes	yes	1,000	200	y	y	y	...	...	99	1	0	0	0	0	...	y	...
INDIANA																		
Brazil	no	no	6	none	...	...	...	...	...	75	25	0	6	...	...	...	y	...
Columbia City	no	no	24	no[2]	...	y	...	...	...	85	10	5	7	0	0	n	y	...
Evansville	no	yes	.....	1 case	...	y	...	...	...	100	0	0	0	0	0	n	y	...
Fort Wayne	yes	no	288	144	y	...	y	y	...	95	4	1	—few—			y	...	...
Fort Wayne	yes	yes	150	100	...	...	...	...	...	100	0	0	100	0	0	y	y	...
Fort Wayne	yes	yes	150	150	...	y	y	y	...	100	0	0	0	0	0	n	y	...
Hammond	no	no	24	12	y	...	y	...	...	95	2	3	0	0	0	...	y	...
Indianapolis	yes	yes	50	36	...	y	...	...	...	90	10	0	0	0	0	n	y	...
Lafayette	yes	no	35	yes	...	...	...	...	...	100	0	0	...	...	...	...	y	...
La Porte	yes	yes	144	144	y	...	y	y	...	100	0	0	10	...	...	...	y	...
Marion	yes	yes	150	125	y	y	y	...	...	75	10	15	0	0	0	n	y	...
Vincennes	yes	yes	100	50	...	y	y	y	...	50	25	25	0	0	0	...	y	...

STATE and CITY	Did You Sell Filters as a SEPARATE Service BEFORE the War?	Will You Sell Filters as a SEPARATE Service AFTER the War?	How Many "THROWAWAY" Filters Did You Sell SEPARATELY in 1940?	How Many "THROWAWAY" Filters Do You Carry in Stock for Service?	What Size "THROWAWAY" Filters Do You Carry in Stock for Service?					What % of Your Service Calls (THROWAWAY) Came From?			How Many "PERMANENT" Type Filters Did You Sell in 1943?			Where Do You Buy Your Filters for Service?		
					16 x 20	16 x 25	20 x 20	20 x 25	20 x 30	Residences	Commercial	Industrial	Residences	Factories	Commercial	Manufacturer	Jobber	Other
IOWA																		
Cedar Rapids	yes	yes	12	24	...	y	...	...	...	90	5	5	0	0	0	n	y	n
Davenport	no	no	72	24	y	y	y	...	...	90	10	0	0	0	0	...	y	...
Davenport	yes	yes	150	30	...	y	...	...	...	90	10	0	0	0	0	...	y	...
Des Moines	yes	no	500	200	...	...	...	...	...	98	2	0	0	0	0	y	...	...
Marshalltown	yes	yes	850	1,000	y	y	y	...	...	90	5	5	475	—25—		...	y	...
Mason City	no	no	.....	50	...	y	y	...	...	95	5	0	0	0	0	...	y	...
Mason City	yes	yes	250	50	y	y	y	...	...	95	5	0	0	0	0	y	...	...
Sioux City	yes	yes	?	24	y	y	y	y	...	100	0	0	?	...	...	...	y	...
Sioux City	yes	no	60	36	...	y	y	...	...	85	10	5	0	0	0	...	y	...
Spencer	yes	yes	144	30	y	y	...	y	...	100	0	0	48	...	...	...	y	...
Waterloo	yes	yes	100	75	...	y	y	...	...	80	20	0	150	...	50	n	y	...
Waterloo	yes	yes	200	150	y	y	y	y	...	90	8	2	10	n	n	y	y	...
Webster City	yes	no	?	%	y	y	y	...	...	85	5	10	?	...	...	n	y	...
KENTUCKY																		
Lexington	yes	yes	1,000	350	y	y	y	y	...	98	0	2	0	0	0	...	y	...
Louisville	yes	yes	100	.....	...	y	y	...	...	100	0	0	0	0	0	y	...	...
MASSACHUSETTS																		
Boston	yes	yes	100 sets	200	y	y	y	...	...	90	5	5	0	3	2	y	...	...
North Scituate	yes	yes	300	250	y	y	y	...	y	99	1	0	0	0	0	...	y	...
Worcester	no	yes	60	.....	...	...	...	...	...	80	0	20	0	0	0	...	y	...
MICHIGAN																		
Adrian	no	no	75	.....	...	y	...	...	...	90	10	0	0	0	0	...	y	...
Ann Arbor	yes	no	150	12	...	y	...	...	...	75	25	0	0	0	0	...	y	...
Battle Creek	yes	yes	250	200	...	y	y	...	...	85	10	5	0	0	0	y	...	...
Dearborn	yes	yes	500	100	y	y	y	y	y	80	10	10	80	10	10	y	y	...
Detroit	yes	yes	100	36	y	y	y	y	...	...	...	...	0	0	0	...	y	...
Detroit	yes	yes	.....	25	y	y	y	y	y	100	0	0	0	0	25	...	y	...
Escanaba	yes	yes	40	48	y	y	y	...	...	80	15	5	50	0	0	...	y	...
Flint	yes	yes	200	180	y	y	y	...	...	90	10	0	0	0	0	y	n	n
Flint	yes	yes	75	38	...	y	y	...	...	90	10	0	10	...	...	...	y	...
Grand Rapids	yes	yes	100	.....	...	y	y	...	...	100	0	0	y	...	...	...	y	...
Highland Park	yes	yes	450	120	y	y	...	...	...	90	5	5	320	40	40	n	y	...
Kalamazoo	yes	yes	200	100	y	y	y	...	...	100	0	0	0	0	0	...	y	...
Kalamazoo	yes	yes	200	200	...	y	y	...	...	90	10	0	0	0	0	y	...	...
Lansing	yes	yes	400	.....	y	y	y	y	...	90	10	0	0	0	24	...	y	...
Midland	yes	yes	200	150	y	y	y	y	...	90	10	0	300	...	...	...	y	...
Muskegon	yes	yes	?	1,250	y	y	y	y	...	90	5	5	12	n	n	y	y	...
New Buffalo	no	yes	95	24	y	y	...	...	...	100	0	0	105	0	0	...	y	...
Saginaw	yes	yes	250	200	y	y	y	y	...	95	5	0	1,600	...	...	...	y	...
Saginaw	yes	yes	150	88	...	y	...	...	...	90	5	5	150	—(few)—		...	y	...
Sebewaing	yes	yes	15	.....	...	...	y	y	...	90	0	10	36	4	...	...	y	...
MINNESOTA																		
East Grand Forks	yes	yes	24	60	y	y	y	y	...	98	1	1	0	6	0	n	y	...
Minneapolis	yes	yes	300	100	y	y	y	...	...	95	0	5	0	36	0	...	y	...
Tracy	yes	yes	50	100	y	y	y	...	...	85	10	5	0	0	0	y	y	...
MISSOURI																		
Joplin	yes	yes	75	96	y	y	y	y	...	80	10	10	100	15	35	n	y	...
Kansas City	yes	yes	125	few	...	y	...	...	...	100	0	0	100	0	0	...	y	...
Kansas City	yes	yes	150	200	...	y	y	y	...	90	10	0	[3]	[3]	[3]	n	y	...
St. Louis	yes	yes	100	45	y	y	y	y	...	100	0	0	0	0	0	...	y	...
St. Louis	yes	yes	500	144	...	...	...	...	...	80	5	15	0	0	0	...	y	...
St. Louis	no	yes	none	175	y	y	y	y	...	75	15	10	1,000	100	100	...	y	...
MONTANA																		
Great Falls	yes	no	400	100	y	y	y	...	...	90	10	0	0	0	0	...	y	...
NEBRASKA																		
Lincoln	no	no	200	50	...	y	y	...	...	90	10	0	y	...	y	...	y	...
Lincoln	yes	yes	48	24	...	y	y	...	...	90	10	0	...	...	...	...	y	...
North Platte	yes	yes	288	432	y	y	y	...	...	80	18	2	10	...	...	...	y	...
Omaha	yes	.....	.....	12	y	y	...	...	...	85	10	15	...	...	...	n	y	...
Omaha	yes	yes	400	120	y	y	y	y	...	95	5	0	0	0	0	n	y	...
Omaha	yes	yes	1,000	200	...	y	y	...	...	98	1	1	...	50	...	y	...	...
Scottsbluff	yes	250	yes	50	y	...	...	y	...	90	5	5	0	0	0	n	y	...
NEW HAMPSHIRE																		
Manchester	yes	yes	100	68	y	y	y	...	...	34	33	33	50	...	50	...	y	...
NEW JERSEY																		
Bogota	yes	yes	150	50	...	y	y	...	...	80	10	10	0	0	0	y	...	...
Penns Grove	yes	yes	25 sets	.....	...	...	...	...	...	100	0	0	0	0	...	y	y	...
NEW YORK																		
Buffalo	yes	yes	150	100	...	y	y	y	...	15	50	35	...	50	50	y	y	...
Buffalo	yes	yes	864	144	y	y	y	...	...	95	5	0	0	0	0	y	...	...
Corning	yes	yes	120	24	...	...	y	...	...	100	0	0	0	0	0	y	...	...
Elmira	no	no	36	15	y	y	y	...	...	100	0	0	0	0	0	y	...	...
Kingston	yes	yes	12	12	...	y	...	...	...	90	10	0	12	...	...	y	...	...
Newburgh	yes	yes	few	12	...	...	y	...	...	50	50	0	0	0	0	y	y	...
Olean	yes	yes	.....	144	y	y	y	...	...	90	10	0	...	...	...	...	y	...
Rochester	no	no	50	12	y	y	...	y	...	100	0	0	0	0	0	...	y	...
Rochester	no	no	40	24	y	y	...	...	...	50	10	40	0	0	0	...	y	...
Syracuse	yes	yes	72	72	...	...	...	...	...	100	0	0	48	0	0	...	y	...

STATE and CITY	Did You Sell Filters as a SEPARATE Service BEFORE the War?	Will You Sell Filters as a SEPARATE Service AFTER the War?	How Many "THROWAWAY" Filters Did You Sell SEPARATELY in 1940?	How Many "THROWAWAY" Filters Do You Carry in Stock for Service?	What Size "THROWAWAY" Filters Do You Carry in Stock for Service?					What % of Your Service Calls (THROWAWAY) Came From?			How Many "PERMANENT" Type Filters Did You Sell in 1943?			Where Do You Buy Your Filters for Service?		
					16 x 20	16 x 25	20 x 20	20 x 25	20 x 30	Residences	Commercial	Industrial	Residences	Factories	Commercial	Manufacturer	Jobber	Other
NORTH DAKOTA																		
Minot	yes	yes	25	12	...	y	...	...	...	100	0	0	25	...	...	...	y	...
Wahpeton	yes	yes	50	24	y	...	y	...	...	100	0	0	0	0	0	...	y	...
OHIO																		
Ashland	yes	yes	144	144	y	y	...	...	...	95	4	1	0	0	0	...	y	...
Barberton	yes	no	300	144	...	y	y	...	...	90	0	10	0	0	0	...	y	...
Big Prairie	no	yes	.....	no	...	...	...	...	...	...	...	...	0	0	0	...	...	...
Canton	yes	yes	500	yes	...	...	...	...	...	15	75	10	...	...	...	...	y	...
Cleveland	yes	no	100	.....	...	...	...	...	...	...	...	...	...	...	...	...	y	...
Cleveland	yes	yes	200	200	y	y	y	y	...	90	5	5	...	...	...	...	y	...
Columbus	yes	yes	2,000	1,000	y	y	y	y	y	95	5	0	0	0	0	y	...	...
Columbus	yes	yes	1,000	750	y	...	y	y	...	100	0	0	0	0	0	y	...	...
Columbus	yes	yes	800	300	y	y	y	y	...	95	5	0	0	0	0	...	y	...
Dayton	yes	yes	.....	.....	...	...	...	...	...	100	0	0	y	...	...	n	y	...
Dayton	yes	yes	100	36	y	...	y	y	...	100	0	0	50	...	...	y	y	...
Dover	yes	yes	60	48	y	y	y	y	...	100	0	0	0	0	0	...	y	...
Findlay	yes	yes	100	144	y	...	y	y	...	95	5	0	150	0	0	...	y	...
Greenville	yes	yes	.....	.....	...	...	y	...	...	98	1	1	0	0	0	...	y	...
Hamilton	yes	no	50	50	...	...	...	...	...	100	0	0	0	0	0	...	y	...
Lakewood	yes	yes	1,000	350	y	y	y	y	y	100	0	0	0	0	0	...	y	...
Mansfield	no	yes	.....	50	y	y	y	y	y	90	9	1	0	0	0	...	y	...
Middletown	yes	yes	100	30	...	y	y	y	...	100	0	0	0	0	0	...	y	...
Ravenna	yes	yes	50	50	y	y	y	...	...	100	0	0	100	0	0	...	y	...
Sandusky	yes	.....	100	30	...	y	y	...	...	85	5	10	...	...	...	n	y	...
Sidney	yes	no	25	36	y	y	y	...	...	80	10	10	19	0	6	...	y	...
Springfield	yes	yes	200	60	y	y	y	y	...	95	3	2	0	0	0	...	y	...
Toledo	yes	?	1,306	144	y	y	y	...	...	90	5	5	0	0	0	y	y	...
Youngstown	yes	yes	200	50	y	y	y	...	...	85	10	5	...	12	...	...	y	...
OKLAHOMA																		
Oklahoma City	yes	yes	1,728	144	y	y	y	...	...	85	10	5	——364——			...	y	...
Tulsa	yes	yes	500	100	...	...	...	y	...	95	3	2	500	...	...	y	...	...
PENNSYLVANIA																		
Clearfield	yes	yes	12	2[2]	...	...	...	...	...	90	5	5	23	1	1	n	y	...
Corry	yes	no	28	48	y	y	...	y	...	95	5	0	0	0	0	n	y	...
Erie	yes	yes	60	25	...	y	y	...	...	90	10	0	0	0	0	...	n	...
Latrobe	yes	yes	288	144	...	y	y	...	...	100	0	0	0	0	0	...	y	...
Meadville	yes	yes	75	.....	y	y	y	...	...	80	10	10	0	0	0	...	y	...
Pittsburgh	yes	no	150	.....	...	...	...	...	...	100	0	0	0	0	0	...	y	...
Pittsburgh	yes	yes	300	100	y	y	y	...	...	95	5	0	290	...	10	y	...	...
Pittsburgh	yes	yes	1,000	300	...	y	y	y	...	98	2	0	0	0	0	y	...	...
Rimersburg	yes	yes	50	.....	...	...	...	...	...	100	0	0	0	0	0	...	y	...
Sharon	yes	yes	40	42	y	y	y	...	...	75	25	0	0	0	0	n	y	...
Tarentum	yes	yes	100	24	...	y	y	...	...	90	10	0	40	0	0	...	y	...
SOUTH DAKOTA																		
Rapid City	yes	yes	75	36	y	y	y	...	...	90	10	0	0	0	25	...	y	...
Yankton	yes	yes	250	75	...	y	y	...	...	90	5	5	0	0	0	...	y	...
TEXAS																		
Dallas	yes	no	300	150	...	...	y	y	y	25	75	0	...	...	50	y	...	...
Houston	no	no	.....	2,160	y	y	y	y	...	10	70	20	n	1,875	625	...	y	...
San Antonio	yes	yes	30	15	...	...	y	y	...	100	0	0	0	0	0	y	...	...
VERMONT																		
Lyndonville	yes	yes	40	12	...	y	y	...	...	75	0	25	0	0	0	...	y	...
WASHINGTON																		
Seattle	yes	yes	500	300	y	y	y	y	...	100	0	0	600	...	...	...	y	...
WEST VIRGINIA																		
Morgantown	yes	no	72	144	y	y	y	y	...	95	5	0	y	...	...	...	y	...
WISCONSIN																		
Beaver Dam	yes	yes	.....	12	...	y	...	...	...	75	25	0	25[4]	...	...	...	y	...
Jackson	yes	yes	100	75	y	y	y	...	...	95	0	5	0	0	0	...	y	...
Madison	yes	yes	864	144	y	y	y	y	...	95	5	0	0	0	0	y	...	...
Milwaukee	yes	yes	30[5]	30	y	y	y	...	...	100	0	0	30	...	...	...	y	...
Milwaukee	yes	yes	1,200	225	y	y	y	...	...	80	15	5	0	0	0	...	y	...
Milwaukee	yes	yes	350	9	y	y	y	...	...	80	15	5	0	0	0	y	y	...
Rhinelander	yes	yes	1,440	144	y	y	y	...	...	100	0	0	y	...	...	...	y	...
Shawano	yes	yes	100	50	...	y	y	...	...	60	20	20	0	0	0	n	y	...
Superior	yes	yes	150	40	...	...	...	...	...	90	10	0	90	0	10	y	...	...
Two Rivers	yes	yes	40	20	...	...	...	...	...	100	0	0	y	...	...	...	y	...
Waukesha	yes	yes	12	24	y	y	...	...	...	...	...	...	...	...	...	...	y	...
Wausau	yes	yes	60	48	y	y	y	...	...	90	10	0	0	0	0	...	y	...
WYOMING																		
Sheridan	yes	yes	125	25	...	...	...	...	y	98	2	0	10	...	...	y	...	...

Notes

[2] = Near jobber.
[3] = Could not obtain.
[4] = And churches.
[5] = 1941.

SHEET METAL SECTION

DEVOTED TO SHEET METAL CONTRACTING AND FABRICATING

STEEL SERVICE

CHICAGO STEEL SERVICE COMPANY

WE DON'T TRY TO SERVE THE WORLD

—but gentlemen, we *do* serve the Central States—and have for many years. We carry complete steel stocks—including Stainless Steel, in all commercial forms.

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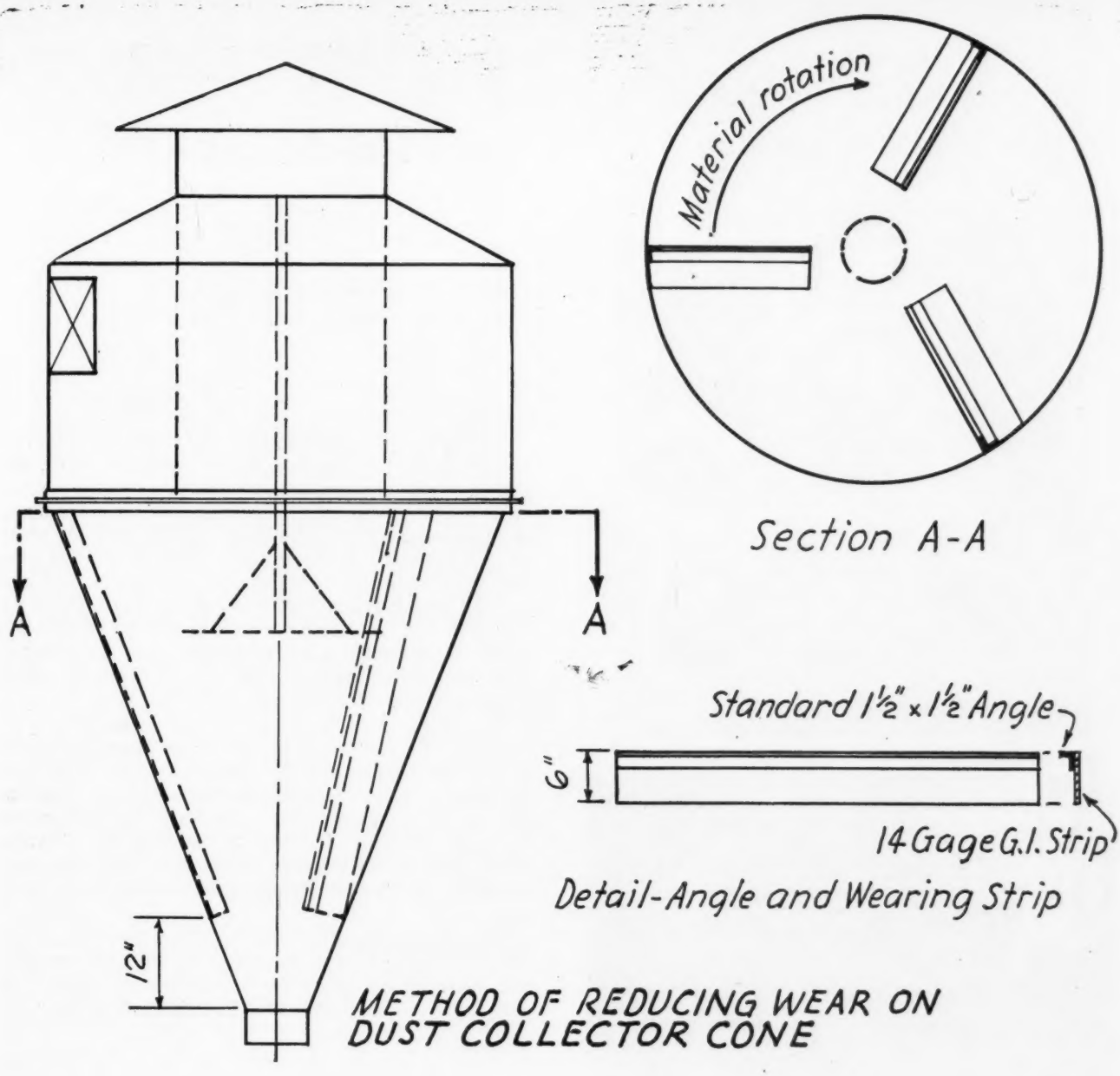


To Reduce Wear on a Collector Cone

By H. M. Nichols
Manager, Dust Control Dept., B. F. Sturtevant Co.

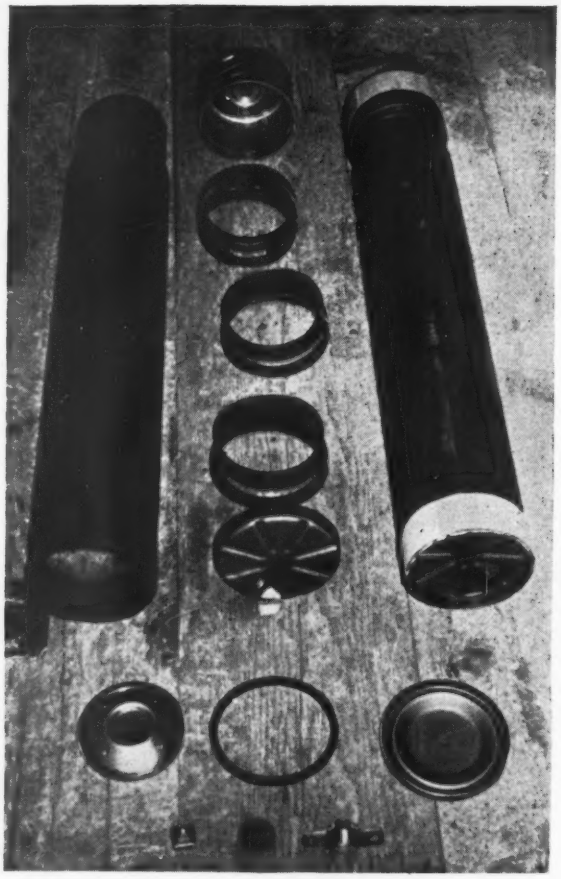
DUST from grinding wheels and similar fine abrasives has a tendency to swirl around the cone of a cyclone collector for a considerable time before working down to the discharge spout. Where the dust loading is high, this swirling action combined with the abrasive nature of the dust oftentimes cuts off the rivet heads and cuts through the cone sheets, the most serious wear usually occurring in the upper half of the cone.

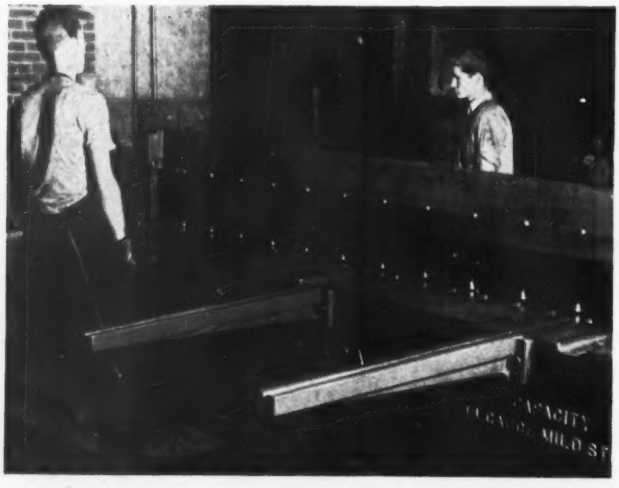
Where the location of the cyclone is such that maximum dust separation is not essential, this excessive swirling and consequent wear in the cone can be prevented by the installation of three vertical angles as shown in the accompanying sketch.

Standard 1½"x1½" angle iron has been found satisfactory, when provided with fourteen gauge, six inch wide, wearing strips attached to the back for absorbing the extra wear which is concentrated near the angles. The angles and wearing strips should extend from the top of the cone to within a foot from the bottom. They may be cut in several sections for convenience in assembly. The assembly should be made as indicated by the arrow, so that the bottom leg of the angle and the wearing strip face into the spinning air stream.

This breaking up of the air spin with vertical angles does have a tendency to decrease the separation efficiency a small amount, depending upon the fineness of the dust, concentration, air velocities, etc. However, usually this is not objectionable as when handling fine dust of this type, a cyclone collector will always show an appreciable discharge of dust with the vented air and accordingly should be located where this dust discharge will not prove objectionable.

Fabrication Procedure for 105 mm. Shell Containers





IN JUNE, the War Department issued this announcement: "A new steel ammunition container, designed to afford packaged artillery rounds and powder charges increased protection from handling damages, is announced. It is estimated 125,000 tons of steel will be required during the first three months of production. Hot and cold rolled sheet and strip steel are required, with more than one-third of the tonnage to be purchased in the form of steel tubing—almost the entire heavy welded tube steel capacity of the country. The new containers, unlike the former fibre and metal container, may be used over and over again."

One of the prime contracts for this ammunition container in the 105 mm. size was given to a well known firm in this industry, The Henry Furnace Company of Medina, Ohio. Operations were divided between two of the company plants—the basic fabrication on the main shell at The C. A. Olsen Mfg. Co., Elyria, Ohio, and the fabrication of small components and assembly, also testing, finishing in the plant in Medina, Ohio.

The fabrication steps developed by the Olsen company are pretty thoroughly shown in the photographs. For most of the steps in fabrication standard machines and methods were used, but throughout the pro-

◆

Top, Photo 1—Main cylinder and 11 parts of the container and finished container. Center, Photo 2—All sheets passed through squaring shear. Bottom, Photos 3 and 4—Two-operation die set up which forms a cylinder in two strokes and single die which closes cylinder, except for 1-inch gap.

Photo 5—Before seam welding, the edges to be welded were cleaned and degreased under this shop-made gas flame.

cedure certain other equipment and methods were originally worked out to keep the contract running at the high speed demanded.

A completed container consists of the main cylinder and 11 parts as shown in Photo 1. These are the parts completely finished ready for assembly throughout the procedure. How these parts are prepared is explained as follows:

The sheets for the cylinder were purchased pretty close to final size, but because little tolerance is permitted in the finished container, every sheet for the cylinders was first passed through the squaring shear, where a cut was taken from each of the four sides, using gages, to produce a blank perfectly square and exact in size (Photo 2).

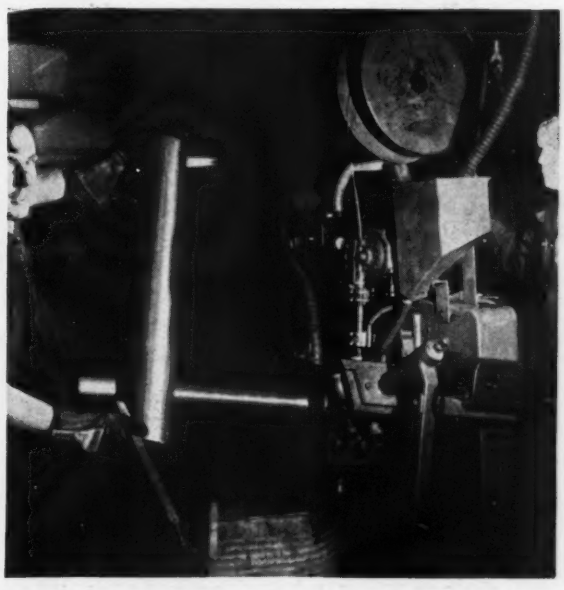
Then the blanks were trucked to a pair of press brakes where two dies on one brake and a single die on the second do these operations. In the first die a circle was formed lengthwise of the blank, but only on one-half the width. In the second die on the same brake, a circle was formed on the other half of the blank. Photo 3 shows the die and the operation. Just a few feet away, the second press brake took the semi-formed cylinder and formed it into a full cylinder which had approximately one inch gap between the edges. This three-step forming of a cylinder was found quickest and most exact in the equipment available and reduced misshaped blanks to the minimum. Photo 4 shows the second press brake and dies. The cylinders were passed from brake 1 to brake 2 on the roller conveyor. One man to unload the blanks, one operator (girl) on each set of dies, and a loader constituted the working crew.

Seam Welding Cylinders

Next comes one of the interesting steps in production. It should be noted the announcement states all the nation's tube production would be used. But Olsen did not get tubing, so with the blanks formed into a cylinder, the next step was seam welding to form a tube.

But before the automatic seam welder could operate, the cylinder had to be cleaned and degreased. Instead of the usual degreasing bath, Olsen worked out a flame degreaser shown in Photo 5. The cylinders were slid into the degreaser and pushed ahead under a long gas flame by new cylinders, and by the time the cylinder reached the lower end of the gas flame, all grease had been burned away, but only in a narrow strip sufficient for welding. Two men—one to load and one to unload—made up the crew and a cylinder was under the flame approximately four minutes.

Photos 6 and 7 show loading and finished sides of the automatic seam welder. The cylinders, degreased, were loaded on one side, and in the welder these things are done automatically. The cylinder is squeezed to its exact diameter. Flux is fed automatically (powdered flux) and the arc is held true while the cylinder passes through to emerge a finished cylinder. The flux is a scale which is tapped off to leave a smooth seam weld inside and outside and requires no final grinding. Two men (one could serve) constituted the welder crew.



Left, Photo 6, and right, Photo 7—Feed and discharge sides of the automatic seam welder which squeezes cylinder to specified diameter, feeds powdered flux and seam welds to a true cylinder. Flux and scale are "knocked off" and seam requires no grinding.

From the seam welder the cylinders pass to another set of dies in a 350-ton press and are given a "squeeze" which insures a true cylinder and serves as a check on any distortion which might occur during welding. Photo 8 shows this setup.

The cylinder is now ready to "neck." A 500-ton hydraulic press (see photos 9, 10 and 11) does the "necking." A twin die setup was possible in the big press with two men to place the cylinders in the dies and removed the necked cylinders. The cylinder was dipped slightly in lubricant before the die worked.

The cylinders are now ready for the operations at The Henry Furnace Co., Medina.

Several series of operations are made in Medina, each one of the 11 parts had its own series of forming operations, and all of these were not photographed. The interesting steps are as follows:

In a punch press operation, the top locking ring was formed to such a close tolerance that a press operation had to be done to put the locking ring on the cylinder neck. A shop press was built to do this operation. One man operated the setup. The cylinder was placed upright in the press with the locking ring held ready in a die. By compressed air the press squeezed the two parts together. Photo 12 shows the operation.

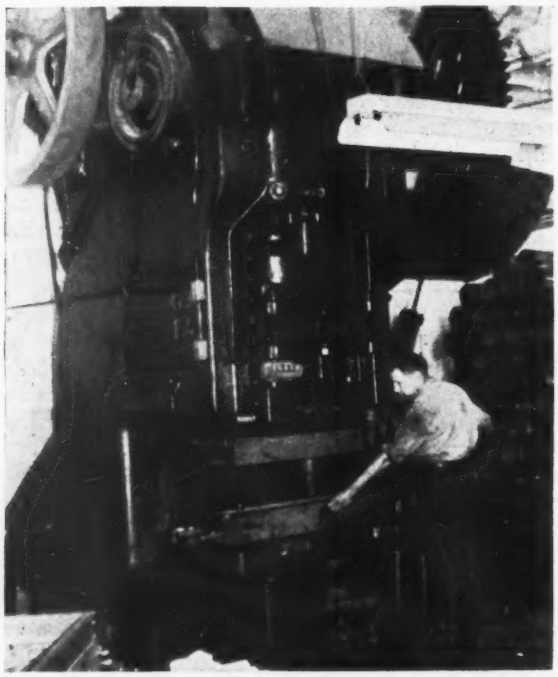


Photo 8—After welding, cylinders are checked and "trued" in this press and die. Deformed cylinders are reworked.

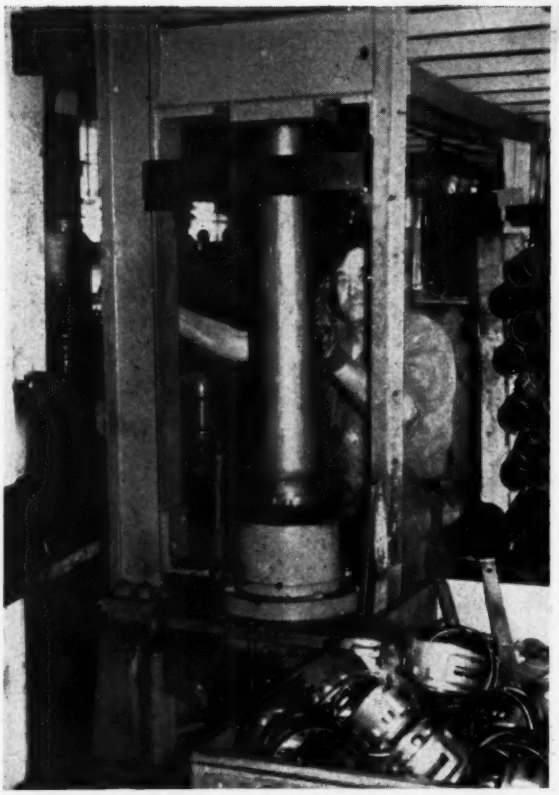
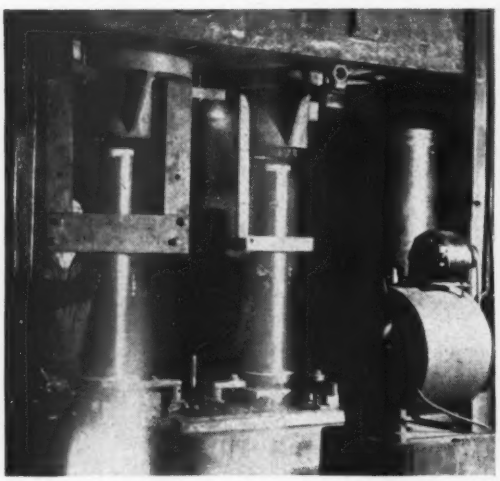


Photo 12—Shop-made, compressed air operated press which "squeezes" the locking ring of the top on the "necked" end of the cylinder.

Just a partition away from this press, two spot welders were set up to spot weld the locking ring to the cylinder. The cylinder comes along a conveyor from which the welder lifts it and places the assembly in a fixture which holds the two parts to correct length. Approximately twenty spot welds are made on each locking ring. Photo 13 shows this welding station and crew.

Presumably the fixture used in spot welding gave a container of proper length, but as a check the step shown in Photo 14 was introduced as a precautionary measure. This compressed air operated fixture took a cylinder with a ring and pressed the top of the ring against a revolving cutting tool. Should the container be a trifle long, the wheel took a "bite"; should the



Left to right, Photos 9, 10, 11—Front, back and full views of the two-position die set up to "neck" cylinders in the 500-ton press. Two men keep production from bottlenecking at this critical stage.

Photo 13—The locking ring is spot welded to the cylinder at some 20 points in this fixture which holds all parts aligned.

container be short, no "bite" showed, so the container would not pass inspection and had to be reworked through the spot welders or discarded. This operation also provided the "flush fit" specified for the locking top which must be air and water tight.

The next step, also using a shop made setup, tied

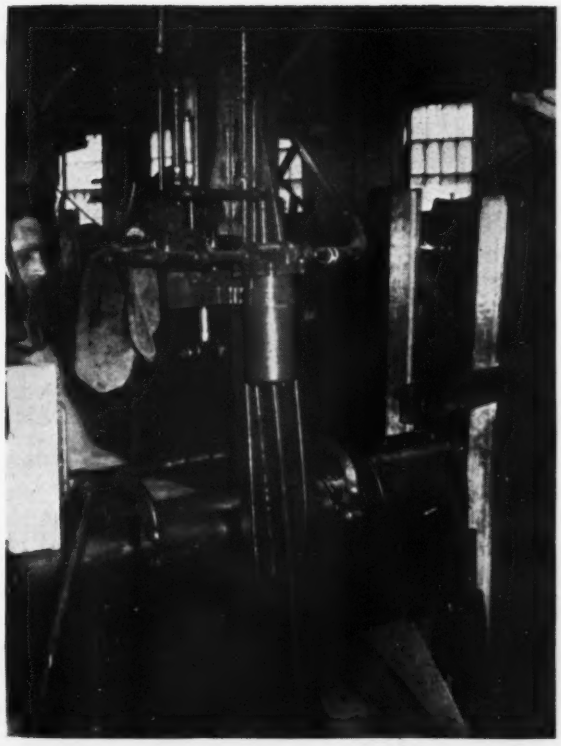


Photo 14—The spot welded assembly is placed in this fixture which, by air, forced the ring against a revolving cutter—if the complete ring gets a "bite" the cylinder is of correct length—if no "bite" or only a partial bite the cylinder is too short and is re-worked.

into the cutting or facing operation just described. The container was slid into a pair of rollers set into the bench—these rollers revolved rapidly by a motor so the container also must revolve rapidly. An operator held a file inside and outside the neck to remove any burrs or imperfections, and these two operations insured the air and water tight surface for the cap. Photo 15 shows this arrangement.

Photo 16 shows the machine setup which put two guide rings or "spacers" inside of the cylinder at one operation. Next came the bottom, which is cup shape to fit inside the cylinder, lapping about one-half inch and seam welded. The bottom must be seam welded and a special welder to automatically weld a circular seam was rigged up but inadvertently was not photographed.

Left, Photo 15—Shop-made roller which revolves cylinder so operator can file inside or outside burrs by holding file against the metal. Above, Photo 16—Shop-made die set-up which presses spacers in cylinder.

Photo 18—Line of hot cleaner, hot rinse, bonderizer and hot wash tanks—preparation for painting.

Photo 19—Shop-made paint dipper—revolving "spider" which immerses cylinder for inside and outside painting and dripping.

Photo 20—Conveyor line which takes caps and cylinders through an infra-red battery for drying. Girl touches up any imperfections.

Photo 17—One of two shop-made "dunkers" which applies 15 pounds air pressure to show any leaks in the welding. Air hose is connected to a rubber plate which seals top. Lever clamps cylinder and lowers it into the water.

The container was then ready for the critical testing operation. No actual cap was used, but the cylinder was placed in an air operated "dunker," which also held a rubber plate against the top. The container was immersed in a tank of water and 15 pounds of air entered the container through a connection in the rubber plate. While 3 pounds were specified for the test, the 15 pounds show more air bubbles if there was a leak. There were two of these testers, each operated by a girl. Photo 17 shows this arrangement. If a leak showed, the hole was ringed with chalk and the container sent back to a touch-up bench, where repairs were made. Most leaks occurred where the side seam meets the weld around the bottom.

The first step in finishing was to pack containers in large racks which moved by overhead conveyor into and out of, in sequence—a hot cleaner and degreaser, a hot water rinse, a bonderizing tank, and a final warm water wash. Parts were "basketed" and given the same pre-paint treatment. Photo 18 shows the battery.

All painting was by dipping. The cylinders were placed on an inclined table which let the cylinders roll into a large "wheel" with two "spiders" to hold the container near each end. The "wheel" revolved in a tank of paint so that with one turn of the wheel both inside and outside of the container was dipped. Photo 19 shows this painter. The "wheel" revolved slow enough that most of the "drip" was finished when the container came up out of the tank. This ingenious "painter" was developed by the paint department. Small parts, like tops, are dipped by hand in another tank.

Upon emerging from the paint tank, the parts were hung on a moving conveyor line which carried the parts through an infra-red drier (Photo 20). The line usually was "loaded" with a container, then a cap or a small part, and so forth; the infra-red battery was high enough and arranged with banks of lamps so that small or large parts were evenly and quickly dried. About ten minutes completed the drying.

(*Continued on page* 112)

Hot Dip, Lead-alloy Protective Coating

THE general use of hot dip lead-alloy coating as a protection of iron and steel is so new that many of the advantages are not yet generally known. Improved methods of applying lead coatings have only recently been developed, largely as a result of the almost complete diversion of zinc and tin supplies to war industries. The term lead coated as used here is intended to mean coated with lead or an alloy containing 95 per cent or more of lead and small amounts of other metals.

Lead alloy coatings on iron and steel sheets possess so many points of superiority over other types of surface protection that increasing amounts of lead coated sheets may be expected to appear in many uses. While lead coatings may be expected to possess great durability when exposed to the weather in their natural state there are many places where sheet metal parts are customarily painted. Gutters, leaders, roofs, spandrels, flashings, corrugated siding and other structural and functional details are commonly included in the parts of buildings which are decorated with color. For these parts lead coated sheets in addition to being highly durable will eliminate much disagreeable work for the painter as well as the hazard of insecure anchorage which usually threatens painted sheet metal.

All of the metal protective coatings which have been commonly used on iron and steel in the past have required special preparation either to remove greasy accumulations or to roughen the surface so that the paint could anchor itself. Some commonly used metallic coatings must be allowed to weather for months or must be treated with copper sulfate, acid or some other solution to create a "tooth" on the surface to which the paint can cling. Also, paints applied over the oxidized surface of certain coating metals seem to have a tendency to take up metallic compounds which cause them to become hard and inelastic. A hard brittle paint tends to crack and scale off as the metal moves as a result of thermal expansion.

Lead alloy coated sheets are free of all of these troubles. The process of their manufacture entails the use of no scum forming material which must be removed before painting. The surface of the hot dip lead coat requires no roughening to provide a secure anchorage for the paint. If any oxides or carbonates of lead have formed before painting they will not have any detrimental effect on the paint after it is applied.

Any of the standard lead pigments are suitable as priming coats for lead coated sheets. The old standby metal primer, red lead, is excellent. Blue lead or blue basic lead sulfate, another favorite metal primer, will give excellent results but when a white lead paint is being used throughout a painting job no special primer is required. White lead paint will adhere to lead coated sheets with the same tenacity it exhibits when applied to wood or other materials.

A priming coat for lead coated sheets made from white lead requires no additional materials beyond those that the painter always has on the job for painting wood, stucco or masonry. White lead, linseed oil and thinner, always on hand, are sufficient to formulate a thoroughly satisfactory primer. The same is true of red lead and blue lead if preference calls for either of these pigments. The following formulas are for priming coats suitable for use on all lead coated sheets.

Formulas for Lead Pigment Primers

Red Lead	
Red lead in oil	100 lbs.
Raw linseed oil	2 gals.
Gum turpentine	1½ pints
Liquid drier	1½ pints
Blue Lead	
Blue basic lead sulfate in oil	100 lbs.
*Boiled linseed oil	2¾ gals.
Gum turpentine	1 qt.
Liquid drier	1 pint
White Lead	
Soft paste white lead	100 lbs.
Raw linseed oil	2 gals.
Gum turpentine	2 gals.
Liquid drier	1 pint

*If raw linseed oil is used, double the amount of drier.

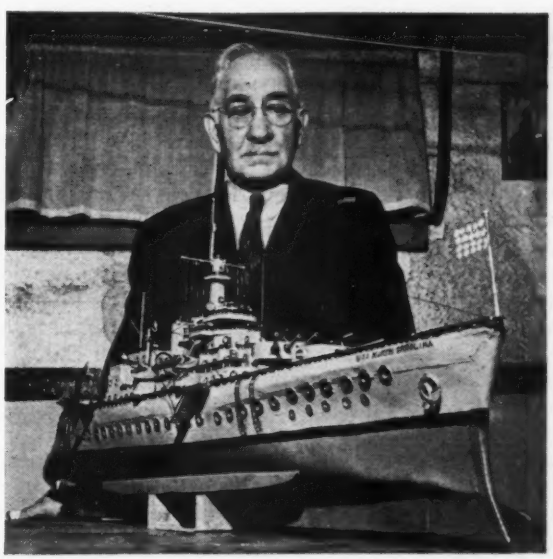
Builds Second Model U. S. S. Carolina

Charles P. Bretch of A. Bretch & Son, 520 S. Jefferson Street, Dayton, Ohio, has built a second model of the U.S.S. Carolina to replace the original model stolen from his fish pond last summer. The present model has a number of improvements over the original battleship. It is built one-sixteenth of an inch to the foot and is 45 inches long and six inches wide. The real U.S.S. Carolina is 720 feet long and 96 feet wide, weighing 35,000 tons. The model weighs 35 pounds and draws seven inches of water.

The ship is complete with two scouting planes, derricks, 16-inch turret guns, search lights, an officers' launch, anti-aircraft guns, broadcasting antenna, and has three decks. Mr. Bretch kept tract of 210 hours spent on his hobby.

A replica of Golden Gate Bridge in San Francisco has also been produced. It is eight feet long with 30 in. towers, a five-inch roadway, quarter-inch cables, 150 stringer cables, and weighs 125 pounds. Mr. Bretch also has a sheet metal bar which he built in 1939 and installed in his basement recreation room.

A. Bretch & Sons was established in 1878 by the father of Charles P. Bretch.



Suggested Sheet Metal Shop Layout

(Three-Story Manufacturing Plant)

By Ernest E. Zideck
Sheet Metal Consulting Engineer

THE building is situated in lower Manhattan, in a congested section of the city. It is 40x80 feet, hemmed in between other buildings, with no windows other than through the front and rear walls. It is of the three story type, with flat roof and a dark, damp, musty basement unsuitable for any other purpose than the heating plant and fuel storage. The building is owned by a sheet metal man who, prior to Pearl Harbor, did general sheet metal work, plus some small-lot manufacturing of such items as movie, radio and similar such sheet metal equipment. With the cessation of building and consumers' supply goods work, this shop was practically shut down.

As the war progressed, New York City and vicinity was flooded with all kinds of sheet metal sub-contract work, most of it being radio and electrical apparatus accessories, parts of cabinets and small aircraft sub-assemblies. The sheet metal man in question secured a substantial contract for small containers, boxes and covers of the above type. This being classed as army or navy sub-contract work, inspectors came to view this man's facilities, and what they found almost annulled the contract. The ground floor of the building was congested with a variety of old and newer machines and tools, installed at random, most of it of no good use, plus rigged up contraptions for doing this or that work, taking up so much space that it was impossible for the men to move around. The second floor was in not much better condition, and the third floor was used for storage of old parts and pieces, of which there has been an abundance in every sheet metal shop. There was no daylight anywhere on the ground floor and very little of it above. But there was an elevator in fairly good condition connecting the three floors. And there was an alley-way in the rear of the building, feasible for materials movement.

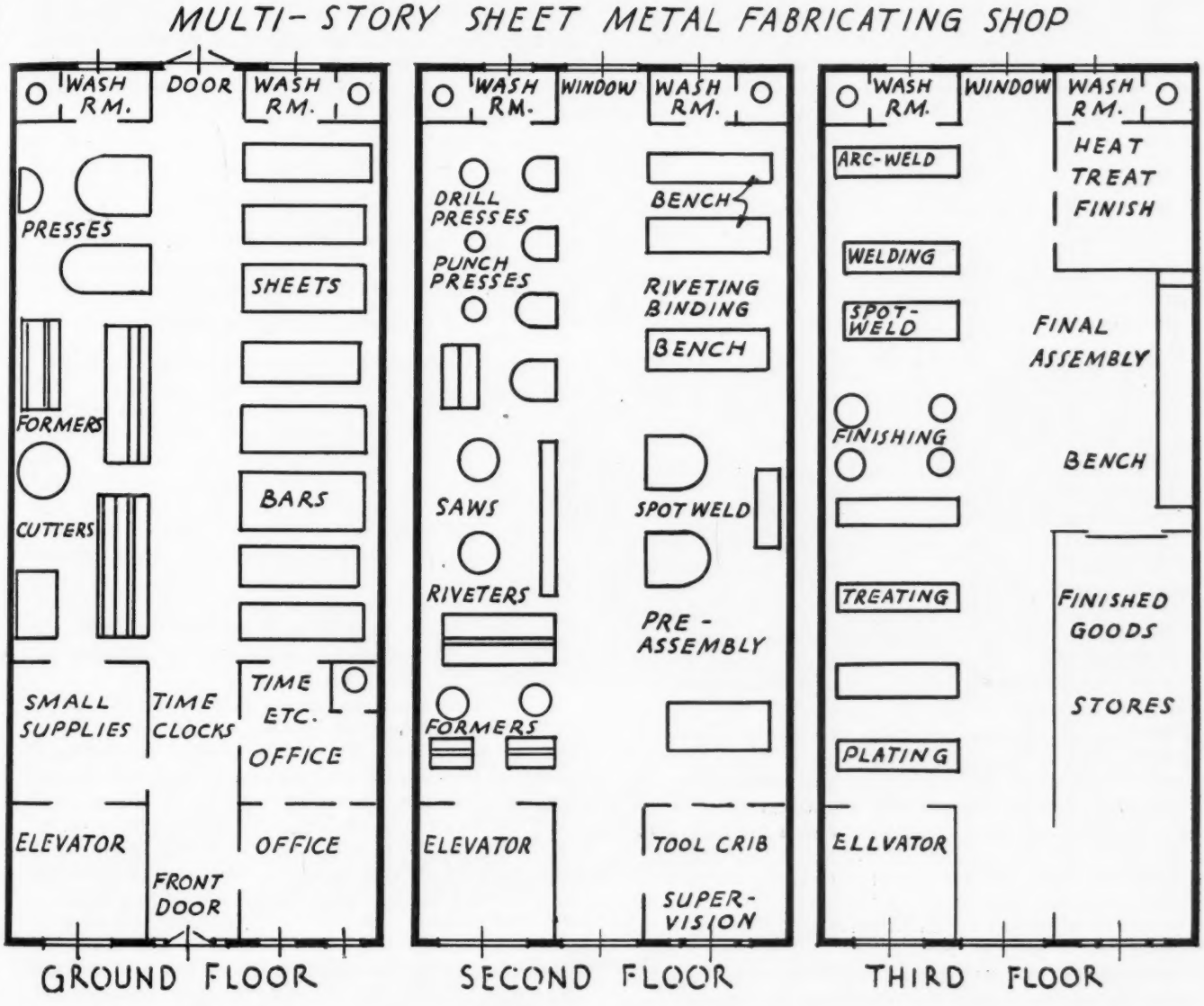
With expert advice, it took the owner six weeks to convert the above described confusion into a clean, well-lighted and sanitary fabricating shop. As seen in the accompanying drawing, the 8-foot passageways in the middle of the three floors each has a large window through the front and the rear walls, the windows extending up to the ceilings. The front entrance has the window above the door. There are smaller windows into the offices and rest rooms, windows in the walls of the enclosures admitting additional light into the workrooms. The elevator shaft has been provided with openings in the walls to shed light into the shaft and transmit some of it to the shop. Similar provisions have been made above the doors in the partitions, which were constructed of two-by-fours and prepared-board paneling. Additionally, the electric light system was extended and modernized.

As seen in the drawing, the ground floor contains the office, timekeeping, small supply room, material storeroom, and heavy work machinery, which consists of power shears, a large power brake, presses and cutters. All material shearing-cutting and heavy forming is done on the first floor. The prepared material and pressed and sheared parts are transported by means of the elevator to the second floor, where there is an enclosed room for the supervisor and the tool crib. The left side of this second floor is utilized for processing the material and parts through formers, saws, benders, punch and drill presses. The right side of this floor is used for bench work, spotwelding of pre-assemblies, general provisioning work. Then the products and parts and parcels of it are elevated to the third floor for plating, various treating, arc and acetylene welding, grinding-finishing, heat-treat finishes as required, and final assemblies. The finished products are stored for shipment in the enclosed room near the elevator. Of special importance in this layout are the 8-foot wide passageways between the machines and the work areas. It is these passageways which facilitate the movement of parts from place to place as needed and which permit of large pieces being handled efficiently by the workmen.

The foregoing illustration of a quick conversion of a three-story building into an organized and well functioning metal fabricating establishment is an example of what can be done and should be done in the way of a shop layout for doing sheet metal work in buildings where the one floor is not large enough for all the work being concentrated there. It is unquestionably better if we can spread out and have all work done on the ground floor. But in the cities, where most of the sheet metal shops are located in congested areas, it becomes necessary to distribute the work on more than one floor.

If we must utilize such an arrangement, then we should follow the example shown in the drawing and do the following: (a) Have a sufficiently large elevator from floor to floor to transport the materials and products under construction; (b) have an emergency exit (fire escape) connect the upper to the ground floor; (c) place all materials and supplies on the ground floor; (d) have the shearing-cutting and all heavy machinery work, such as press-work, press-brake work, stamping, etc., done on the ground floor; (e) there must be a receiving-shipping-timekeeping, etc., office on the ground floor; (f) use the second floor for light work, for the more intricate forming, provisioning, pre-assembly work; and (g) if there is a third floor, do all the welding-grinding-finishing and final assembly there.

A general sheet metal shop engaged in heating, ventilating, architectural and similar custom work can well be similarly arranged. But in this case there is less heavy machinery required on the ground floor and final assembly of sections into ducts and similar large products can be done here. The second and third floors could be used for laying-out, for making up the smaller assemblies, for preparing the sections, for the



real intricate work. There is enough work to be done in preparing the final assembly that two-thirds of the time-consuming tasks can be done in the upper floor or floors. This arrangement also applies to industrial sheet metal work and to fabrication of light metalware, such as furnace supplies.

Scientific Work Layout

Various problems confront the sheet metal contractor and fabricator. The quality and the bulkiness of some sheet metal products are so numerous that it would seem each specialty requires a special work and shop layout. But on the whole, certain fundamentals apply to *all* sheet metal work, large or small, and these fundamentals should be observed in planning by what means and how to do the work.

In all sheet metal work the sequence of tasks-to-be-done remains the same. The sequence is: (1) materials storage and control; (2) production planning and production layout; (3) machinery and tools and their practical placement and efficient use; (4) materials movement from storage to workroom and movement of parts from machine to machine and work areas; (5) work performers, work leaders and work inspection; (6) production schedules and production control; (7) finishing, storing, shipping.

Task One—Materials storage and control; as above shown (and as illustrated in the article in AA, April, page 66), materials must be placed within reach and under constant control of the stockkeeper. He must have a sufficiently large stock from which to draw and know exactly what he has on hand, where to find it, how to deliver it. The *simplest possible* materials control system and materials requisitioning should be introduced and adhered to, because in many cases a complicated system causes confusion, inaccuracies, time loss, production delays, production stoppages costing disproportionate amounts of money. A scientific materials-control system is the first requirement of successful manufacturing.

Task Two—Production planning and production layout. This phase is just as important in making a chimney top as it is in building a super-bomber. Without knowing exactly what is to be done, what steps to take, one in sequence to the other, the man building the chimney top will never succeed in making it. More confusion and losses have been caused by insufficient or improper or inadequate or incompetent planning and production layout than by the combined poor work done in the shops. Most of the poor work in the shop, time loss and labor unrest and failure has been due to bad planning. In many cases bad planning is worse than none because it only confuses the work supervisor instead of leaving it up to him to go ahead with the work as he knows how. A scientific system of doing work planning and tool and sequence planning is a dire necessity even in the smallest of shops.

Task Three—Machinery and tools and their practical placement and efficient use. This phase relates directly to the shop layout. Fewer machines and tools practically conceived and placed right for good use is far better than a congestion of confusedly arranged machinery and tools. In fact, most old-time, outworn and constantly repaired machines and tools had better be thrown out to retain or procure only a few good ones, well planned and well used. Machines and means of doing work should be arranged in sequence of work: (a) shearing-cutting; (b) punching-notching-drilling in flat; (c) forming of parts; (d) fitting of parts into sub-assemblies; (e) binding by seaming, riveting, spotwelding or other means; (f) finishing by grinding and other means; and (g) final assembly, storage.

Task Four—Materials movement to and between areas of work. This can be done by overhead conveyors or by wheeled benches. The first is better in the initial stage of raw materials movement; the second is better for conveying the parts in the stage of production. Sufficient passageways and sufficient room around the machines are of prime importance in this connection. The shop layout should start with this phase uppermost in mind: a congested place to work is worse than only a few machines and tools with which to do the work.

Task Five—Work performers, work leaders and work inspectors. In this connection it has been found that a *well planned job* can be done in a *well planned* shop as efficiently by the less experienced help as has been done by old-time mechanics who had no plans and had to work in a poorly arranged shop. Work leaders must *know* what the work-plans are and be able to interpret them to the workers. Nowadays better results are accomplished by a leader who is familiar with the work at hand and can instruct his help than by the leader who tries bullying the worker. Inspection, as emphasized many times in the past in these pages, should be exercised by the workers or leaders at each operation or performance rather than by special inspectors who are not versed in the work. Green inspectors are worse than none because they inspect non-essentials and let slip by the really important points of work.

Task Six—Production schedules and production control. This phase obviously is closely associated with work planning and work performance. No scheduling can be held without advance knowing of how the work will be done and what time it requires to be completed. No amount of persuasion, overtime or extra work will keep up schedules set without that pre-knowledge. Production control is best if it is supplied with materials at the time wanted and given all the necessary supplies and means to go ahead with a task without losing time in confused running back and forth trying to keep the workers supplied with well planned tasks to do.

Task Seven—Finishing, storing, shipping. This final phase usually is (or should be) under unified control. Finishing, such as enameling, is best controlled by the man responsible for delivery of flawless goods; and on the other hand, the storekeeper and shipper can get exactly what is required first, next and last if he controls the final phases of production.

A Well Planned Work Place

In sheet metal work, the prerequisites are: a roomy, well-lighted, uncongested shop and machinery and means arranged for doing work step by step without having to run all over the shop in search of a tool, interferring with the work of others. Such a work place, having the kind of arrangement required for the particular work performed in it, will prove that it saves the owner or fabricator at least 25 per cent in wages paid. Efficient work and voluminous, smooth production are in a large degree the result of shop and means arrangement. Cheap or high paid labor, no matter which, loses a good deal of its ability to perform in a shop not well planned or equipped or arranged.

It is not necessary to have a new place built to receive the advantages of greater and better performance at lesser cost. The example cited in the foregoing, of the Manhattan sheet metal man transforming his workshops from a formerly "all messed up" condition to a really efficient factory is the proof of it. Any fairly adequate workshop can be made over into something like the shop shown in the drawing. The disadvantage of the many-storied work place obviously is the elevator use. But even so, the loss of time caused by transporting the product up and down the elevator is amply compensated for by having the work done quicker and better under the new arrangement than by doing it in the messed up shop located on only one floor.

When peace comes and materials again are plentiful for consumers' requirements, competition obviously will be strong. New shops will be built by the men returning from the fronts or the war plants. Many of the old shops will go under. Many of the new shops badly planned or managed will go under. But there will emerge the sheet metal shop which has been modernized and efficiently planned.

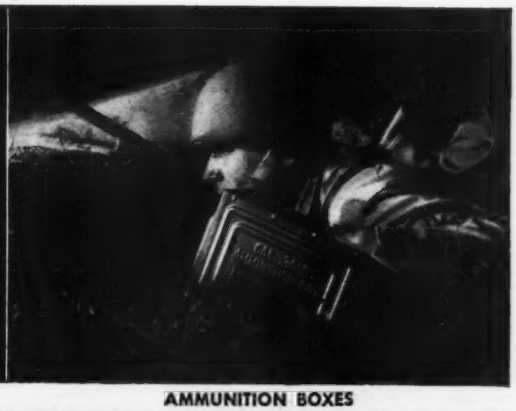
Termination Forms

STANDARD forms to be used for settlement of terminated fixed-price (lump sum) supply contracts, approved by all government agencies concerned, will be available for distribution in October, Office of Contract Settlement, announced. The uniform settlement proposal forms may be obtained from any government contracting agency, such as the procurement services of the Armed Forces and the Maritime Commission at their local offices throughout the country. Subcontractors may obtain forms from their prime contractors.

The adoption of new standard settlement forms is the eighth step in the program to expedite the termination of war contracts, under the Contract Settlement Act of 1944. It follows closely on announcements of T-loans for interim financing of terminated war contracts, provision for partial payments to war contractors with terminated contracts, provision for pretermination agreements, plant clearance and property disposal, and three other regulations designed to speed the settlement process.

The standard contract settlement proposal form (Form 1) provides for filing of practically any type of inventory claim and also allows for progressive inventory report. Exceptions are taken care of by Form 1-a for use when the contractor proposes to dispose or retain all inventory allocable to the terminated portion of the contract and the net amount of the proposed settlement is less than $1,000; and Form 1-b for use for settlement proposal on total cost basis.

SHELL WINDSHIELDS



AMMUNITION BOXES

MESS KITS

BLITZ CANS

The Versatility of SHEET STEEL

These are some of the shapes in which, under the spur of military necessity, Bethlehem Steel Sheets are today being formed. Only sheet steel of highest quality can fill so many needs so satisfactorily.

Note the complex shape of the "blitz can" top, and the deep-drawn shell windshield. Isn't sheet steel a pretty versatile material, when all's said? It's not only light, strong and ductile; it can be seamed, soldered, welded and fastened in other ways, and its surface can be painted, lacquered, plated or otherwise finished for a variety of purposes.

In the shape of postwar things, we believe that sheet steel will loom pretty large—lending itself readily to new products and projects, and helping make old ones better and more efficient.

Bethlehem will gladly help you with your post-war sheet-metal problems. There's no obligation, of course: simply get in touch with the nearest Bethlehem representative, or write to Bethlehem Steel Company, Bethlehem, Pa.

BETHLEHEM STEEL

Bethlehem Steel Sheets

NWAH&AC Ass'n December Meeting

Red Motley

To WARM Air Heating Dealers: The Program of the 31st annual meeting of the National Warm Air Heating & Air Conditioning Association to be held at the Hotel Statler, Cleveland on December 13 and 14 is expected to point the way to the sale of 1,000,000 and more warm air heating installations post victory.

On another page of this issue of AMERICAN ARTISAN is a story telling about the advertising, publicity and sales promotional program to be sponsored by the warm air heating industry, including manufacturers, jobbers and dealers. The association urges dealers to read about and to make hotel reservations **now** and train reservations going and returning thirty days in advance. The $5.00 registration fee for non-members of the association **does not apply to dealers.**

On the opening day of Wednesday, December 13th, the following speakers and subjects will be presented.

H. P. Mueller, President, National Warm Air Heating & Air Conditioning Association, will open the meeting telling about the opportunities for a **"New Horizon"** in **the warm air heating industry.**

C. E. Price, General Manager—Keeney Publishing Co., will open the door—wide open—in his talk on **"Marketing Opportunities"** based on an exhaustive market research survey made by his company.

James R. Scott, Chairman of the Publicity and Merchandising Committee of the Association, will tell you **"How it Can Be Done" through Advertising, Publicity and Sales Promotion.** His presentation will be "reverse English" with many "pluses" compared to the wartime sales program of "How not to sell".

At the luncheon, **A. H. (Red) Motley** of New York, Publisher of the American magazine, will be our guest speaker. He will bring to you the glamour of his business career which ranges all the way from being a worker in the iron mines of Michigan to publisher.

Although making speeches is in no sense his job with Crowell-Collier Publishing Company, in the past few years, Red has found time to travel from Canada to Texas and from New York to California to address many groups of business executives on selling, advertising, and postwar problems—subjects on which he qualifies as an expert and in which he is tremendously interested. He'll "wow" you with his common sense, his humor and his jokes.

Don't miss Red Motley and all the distinguished speakers on the program.

Following nomination and election of officers at the afternoon session on the opening day of December 13th, **Ralph W. Carney,** Vice President and General Sales Manager of the Coleman Lamp and Stove Company, will talk on the subject of **"A Business Man Speaks up".** He knows his subject and he has a real message for YOU.

J. Archibald Kiss, advertising counsellor of Chicago, a very gifted speaker, will present as his subject **"Where Are You Going?"**

We will also have a short message from one of the members of our Canadian Chapter and from **W. D. Redrup,** Chairman of our Installation Codes Committee on **"A Tool for Dealer Training".**

The annual meeting will continue through the morning of the second day, Thursday, December 14th.

Professor S. Konzo of the University of Illinois, will talk on **"Industry Standardization in Sizes, Method of Designs and Installations".** He will also briefly outline the new sections of the text book which have been prepared and will emphasize the new Code and Manual for warm air—winter air conditioning. Complimentary copies of all the new sections and Information blank and Heat Loss Data sheets will be distributed along with order forms.

Professor A. P. Kratz of the University of Illinois, will make a Progress Report on Research and Professor Lorin G. Miller of Michigan State College, will outline the Short Course School to be held in East Lansing, Michigan, next March.

The great importance of this annual meeting for dealers cannot be over-emphasized. There is in the making a strong dealer division of the Association—so be sure to come. Again, we suggest that you make your hotel reservation now.

George Boeddener, Man. Dir.,
145 Public Square, Cleveland 14.

Codes Committee

The Installation Codes Committee of the National Warm Air Heating & Air Conditioning Association, along with Professors Kratz and Konzo, representatives of American Artisan, Sheet Metal Worker, Snips Magazine, and George Boeddener—managing director of the association—met for a two-day meeting on September 15 and 16 at Huntington, Indiana.

The final copy of the new code and manual for warm air—winter air conditioning systems, was proofread, line for line. A few changes and additions were made. A suggested winter air conditioning code for Ordinance form was also checked and approved. This ordinance form code will prove to be a blessing to thousands of communities in the years to come and will be of great benefit to the industry.

Every effort is being made to have the new warm air—winter air conditioning manual and other sections of the new textbook made available by the time of the annual meeting to be held in Cleveland on December 13th and 14th.

Convention Committee

On October 31st the Cleveland Convention Committee was organized to provide entertainment for the National Warm Air Heating and Air Conditioning Assn., to be held in Cleveland December 13th and 14th.

M. I. Levy, Viking Air Conditioning was made Chairman, and I. E. Seith of Forest City Foundries Company, Treasurer. Other members are, Wilson Wright, Republic Steel; Herb Curtis, Auer Register; A. L. Rybolt, Rybolt Heater Co.; Atlee Wise, Wise Furnace Company; C. T. Burg, Iron Fireman Mfg. Co.; C. A. Olsen, C. A. Olsen Mfg. Co.; H. S. Sharp, former National President, Sharp Heating Supply Company; H. A. Morrison, Morrison Products, Inc.; Ben Krause, Air Controls, Inc.; Don Fisher, local dealer, and Robert A. Jack of American Artisan.

VIKING'S POST WAR PLANNING FILE FOR DEALERS

FORCED AIR

CAN PUT MONEY IN *Your Pocket!*

HERE'S WHY YOU'LL PROFIT!

1. THE MARKET IS TREMENDOUS—Up to Pearl Harbor over 9 million gravity furnaces were in use in the United States. During the war many thousands of low priced homes have been built which normally would have used forced air systems but were restricted by priorities. These homes are all ripe prospects for you.

2. THE VIKING BLOWER IS PROVEN EFFICIENT—Superior research and engineering facilities have made Viking blowers the choice of America's greatest furnace manufacturers. A Viking Blower Package will convert any furnace installation into a modern winter air conditioning system to be adapted to any home.

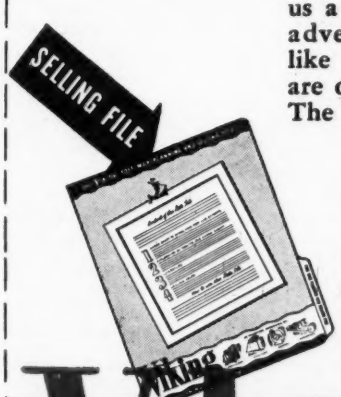
3. VIKING SALES HELPS MAKE SELLING EASY—Dealer helps include literature and displays for the homeowner and for you that show what forced air heating is, how Viking Blowers operate and how to sell them.

See How We Train You Now At No Cost to

BE A BLOWER DEALER!

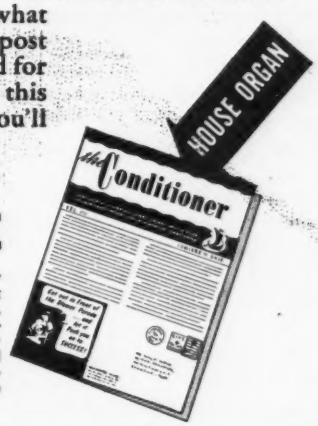
● To help you get the profits you can get from Blower sales, we have started a special training course that you can enroll in at no cost to you. If you are interested, just write us a note that you saw this advertisement and would like to get the material we are offering.

The Viking course in winter air conditioning consists of regular mailings of educational material. This material will teach you what you should know about winter air conditioning, how to sell it and what to do now to line up post war business. Be prepared for peacetime markets. Grab this chance to get ready. You'll not be sorry.



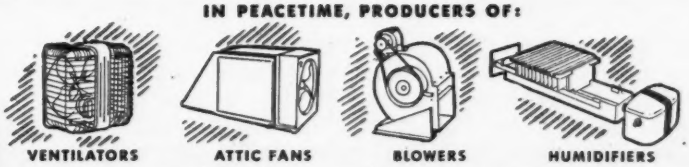
GET BOTH FREE

We will send you this FREE Data File, chock-full of information to show you how you can make good money from Blower sales. Study it—keep it—use it—without obligation. Tells you the 17 things you can do now . . . today to help get post war business. Gives you selling helps, priority information, and literature to use now and later. And with it we will send our new 2-color house organ, the first in the industry to tell you how to sell Forced Air Heating, and to give you pertinent news about business conditions that will affect you. It describes how Dealers can learn now to make good money as Blower Dealers.



Viking

IN PEACETIME, PRODUCERS OF:



AIR CONDITIONING CORPORATION • 5600 Walworth Avenue • Cleveland 2, Ohio

ASSOCIATION Activities

Contractor's National

THE board of directors of the Sheet Metal Contractors National Association in their semi-annual meeting in St. Louis on October 13 and 14 transacted several important pieces of business and reported the progress made since the annual convention in April.

A new third vice-president was elected—R. Guenther of Chicago to replace L. A. Blattmen of New Orleans who asked to be relieved of an officership. Three additional directors were elected in order to place a director in every area where progress is being made or organization work is under way. Frank Sink, president of the Indiana association was elected a director for Indiana. C. H. Ruebeck was elected a director for the Texas-Oklahoma area. K. Bonebright was elected a director for Nebraska-Kansas-Iowa. The election of each of these directors is contingent, of course, on acceptance by each of these men.

Reports were received from the various committees appointed in April to study industry problems. The Bid Depository committee reported that the problem of eliminating bid peddling is acute and recommended a resolution to the American Institute of Architects and the Associated General Contractors asking that bids of the sheet metal contractor be announced by the acceptor and used. It is felt that if architects or contractors getting bids on sheet metal work will make known the name of the low sheet metal bid, the current practice of peddling bids will be partly solved. The resolution will be drafted and mailed.

The Apprenticeship Committee reported that it has studied various state programs and the Federal program and finds fair agreement between these. With small modifications the Federal program of apprenticeship training is suitable for use in any state or local area so the committee will prepare a uniform program and will be glad to advise with any local group.

The Ventilation and Blow Pipe Committee recommended relaxation, as soon as possible, of all L and M orders of the WPB, but no action was taken. The committee suggested that the duct sizes shown in the ASHVE Guide be adopted as standards by the industry.

The Committee on Heating Codes reported that the Code Committee of the National Warm Air Heating & Air Conditioning Association has now prepared a code for forced air heating—winter air conditioning in ordinance form. Another ordinance form code for gravity installations is under way and should be ready by the end of the year. These two ordinance form codes are brief and take care of design and installation by reference to the Gravity Installation Manual and the new Forced Air Installation Manual which will be ready by 1945. The two ordinance form codes and the two manuals will standardize all design and installation and should be recommended by all members.

The Labor Relations Committee has been doing local work and will now attempt to establish relations with the national officers of the sheet metal workers union. A report will follow.

A change will be voted upon in the next convention under Article V, Section II of our Constitution and By-Laws whereby the President will appoint the Chairman of each forum meeting, such as Warm Air Heating, Architectural Sheet Metal, Blow Piping and Ventilating, and Roofing and Allied Trades, instead of the forum electing their own chairman. This will stop the confusion that occurred last convention and save time.

Ben Kolbenschlag, Chairman of Warm Air Dealer Educational Committee reported that a letter was received from Jack Stowell in which he said that he met with the Educational Committee of the National Warm Air Heating and Air Conditioning Association, which was headed by Mr. Scott of the Mueller Furnace Company, and after some discussion, it was decided to wait until they announced their extensive dealer educational plan before any action.

The three trade papers were authorized to prepare a program for increasing our membership. That matter was left in the hands of Joe Wilder, Ross Mahoney, and Ed. Carter to cooperate with a membership committee appointed by President Varden.

Bid Peddling Resolution

The Resolution Committee of the Sheet Metal Contractors' National Association, Inc., presents the following resolution:

WHEREAS, the present method of awarding contracts through general contractors allows the unfair general contractor to take advantage of a condition that is not fair to the owner, architect, or honest general contractor, and

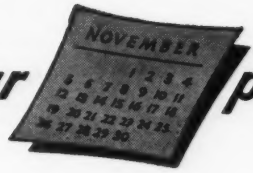
WHEREAS, this is a constant annoyance to the legitimate sheet metal and roofing contractors

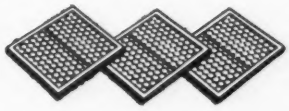
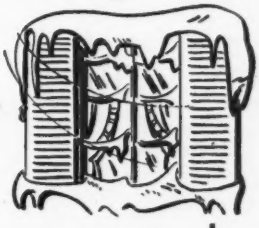
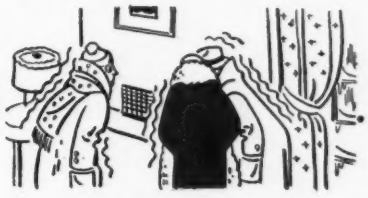
THEREFORE BE IT RESOLVED, by the Directors of the Sheet Metal Contractors' National Association, Inc., in a meeting assembled in St. Louis, Missouri, October 13 and 14, 1944, that we appeal to the Officers and members of the American Institute of Architects and Engineers to use their good office to correct some of the abuses in the contracting industry existing between sub-contractor and general contractor by calling upon all architects in the various chapters of the A.I.A. to insert a clause in all of their specifications requiring all general contractors to list the names of all sub-contractors whose bids were used in making up their quotations on both basic and alternate proposals.

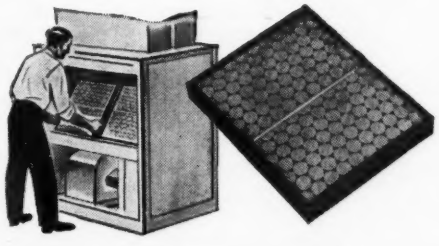
This, we believe, will help to eliminate the general contractor who bids with the expectation of bid peddling, and the subcontractor who is ready to chisel. Both work to the detriment of the industry, the job, the owner, and the architect, for if they chisel the price, they will also chisel the job.

E. J. Merrick, Chairman
H. Orton
J. V. King
R. Guenther
Resolution Committee

The next annual convention of the association will be held in St. Louis the last of April or the first of May, 1945—depending on hotel facilities.

Push DUST-STOPS* *and swell your*  *profits!*

Early winter is always a "hot season" for DUST-STOP  sales. Many folks neglect to change their air filters until cold weather  reminds them that dirty air filters prevent heat from circulating as it should  . Then, they want "service" . . . And they're prepared to pay for it . . . So, why not get some of this profitable business?



● Your Dust-Stop Distributor will be glad to show you how you can make *extra profits* with Dust-Stops the year 'round. We suggest you contact him immediately . . . or write *Owens-Corning Fiberglas Corporation, 1930 Nicholas Building, Toledo 1, Ohio. In Canada, Fiberglas Canada Ltd., Oshawa, Ontario.*

DUSTOP AIR FILTERS

*T. M. REG. U. S. PAT. OFF.

—a FIBERGLAS product

Association Activities . . .

Illinois

The Sheet Metal Contractors Association of Illinois has recently mailed to each member of their association the following "Bulletin on New Ruling of Retailers' Occupation Tax" which it is hoped will clarify all doubts regarding payment of Retailers' Occupation Tax: Members are urged to read and digest every word of this bulletin:

Bulletin on New Ruling of Retailers' Occupation Tax
Furnished by Sheet Metal Contractors Association of Illinois

ARTICLE 1 Heating Equipment—Stokers, Furnaces.

(a) One or more units of heating equipment sold and installed by the vendor as an incident to his construction of a building or an addition to a building. **Vendor not liable for tax.**
(b) Resetting customer's furnace (meaning tearing down, reconditioning and rebuilding customer's existing furnace.) **Vendor not liable for tax.**
(c) Repairing (such as replacing fire pot in customer's furnace.) **Vendor not liable for tax.**
(d) Sale and installation of an entire heating system consisting of heating unit, pipes, ducts, registers and the like, in new or old structure. **Vendor not liable for tax.**
(e) Replacing a section of heating pipe in a building without the necessity of tearing out a section of the existing structure, or replacing a heating unit (such as a furnace or stoker.) **Vendor not liable for tax.**
(f) One or more units of heating equipment sold and installed by the vendor, with or without accompanying fittings such as pipes, etc. (but less than an entire heating system.) **Vendor liable for tax.**

ARTICLE 2 Ventilating Equipment

(a) One or more units of ventilating equipment sold and installed by the vendor as an incident to extensive construction work, such as air conditioning a building, otherwise than by the mere sale and installation of portable equipment. **Vendor not liable for tax.**
(b) Repairing customer's ventilating equipment by replacement of necessary parts of ventilating units. **Vendor not liable for tax.**
(c) One or more units of portable ventilating equipment sold and installed by the vendor, even though some construction work (such as cutting a hole in a building wall in order to attach a fan) is required. **Vendor not liable for tax.**

ARTICLE 3 Rain Carrying Equipment.

(a) Patching or otherwise repairing customer's rain carrying equipment. **Vendor not liable for tax.**
(b) One or more units of rain-carrying equipment (gutters, downspouts and conductor pipes—rain pipes) sold **and installed** by the vendor for the purchaser, either in connection with or apart from other construction work (whether the rain-carrying equipment is prefabricated or is made by the vendor in his own shop upon receipt of an order therefor.) **Vendor not liable for tax.**

ARTICLE 4 Miscellaneous.

(a) "Over-the-counter" sales to users or consumers. **Vendor liable for tax.**
(b) Construction or repairing of roof for customer, painting of customer's building, the doing of tinning or sheet metal work upon customer's building and the rendering of other special services (vendor furnishing necessary labor and material.) **Vendor not liable for tax.**
(c) Where a vendor sells and installs building accessories, equipment and related products under circumstances which render him liable for tax, and at the same time engages in some activity which is not necessarily related to such sale and installation and which does not render the vendor liable for the tax (such as repairing property which already belongs to the customer for whom the building accessories, equipment and supplies are being installed,) such unrelated activities (even though performed by the vendor during one visit to the customer's premises) should be treated separately by the vendor in computing his Retailers' Occupation Tax liability. In such a case, the vendor's receipts from the repair work are not subject to tax, and he should determine the extent of his liability, in so far as his sale and installation of the building accessories, equipment and related products are concerned, by reference to Article 5 hereof as in other similar cases.

ARTICLE 5 Extent of Liability.

Where it is stated herein that the vendor incurs Retailers' Occupation Tax liability, his liability is measured by the full amount which he receives from the transaction (including his receipts from tangible personal property, installation charges and any amount which he may collect to compensate himself for his payment of the tax) if he contracts for the sale and installation of the property at a flat or lump sum price. However, where it is stated herein that the vendor incurs Retailers' Occupation Tax liability, his liability is measured by his charge for the tangible personal property which he transfers, plus any amount which he collects from the customer to compensate himself for his (the vendor's) payment of the tax (but excluding his receipts from installation charges,) if his contract shows (or if, in the case of a verbal agreement, his business policy establishes) that he contracts for the installation of the property separately from its sale by quoting and agreeing with his customer upon) the installation charges separately from the price of the tangible personal property to be installed. This subdivision does not apply where "over-the-counter" sales at retail are made because no installation work is involved in such cases and so no question of including or excluding receipts from installation charges in computing Retailers' Occupation Tax liability is involved in such cases.

EXPLANATORY BULLETIN

We take this means of explaining some of the Articles and also giving an example of Article No. 5. The remaining Articles are self explanatory.

ARTICLE 1 Heating Equipment—Stokers, Furnaces.

(a) Meaning installation of complete new heating equipment.
(d) Meaning same as in (a) only in old structure which never had a heating plant.
(e) Meaning replacing of a heating pipe or taking out old furnace, or stoker and installing new.
(f) Meaning replacing of old furnace and using some of the old pipes and ducts.

ARTICLE 3 Rain-carrying Equipment.

(b) Self explanatory, with exceptions if sold over the counter and customer erects same you are liable for tax.

ARTICLE 5 Extent of Liability.

If you have a signed contract by your customer, listing all labor and materials under one contract, you are liable for tax in full, including labor. If you make two separate contracts, one for material and one for labor you are only liable for tax on material. (This applies to Article 1—(e) and (f).

EXAMPLE

Contract 1

Furnace and Fittings and Labor	$395.80	Tax on full amount

Contract 2

Furnace and Fittings	$310.80	Tax on
Labor and Installation	85.00	$310.80 only
	$395.80	

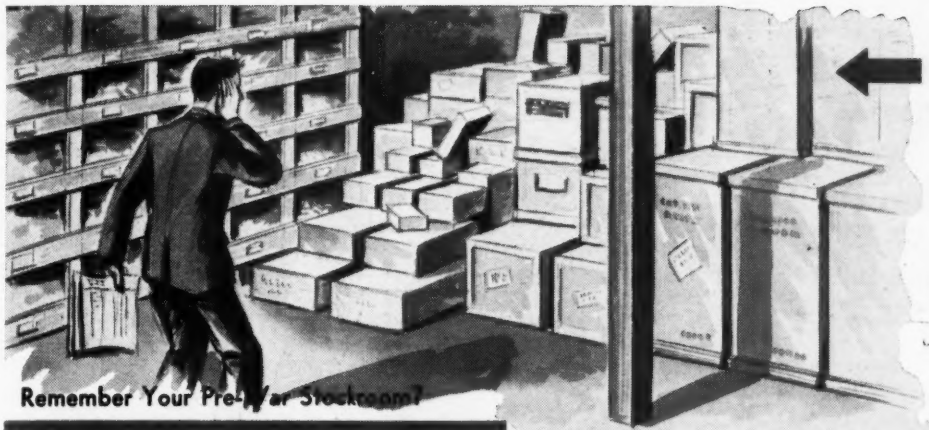
Ed. PLUTH, President.
W. R. SHAW, Secretary.

◆

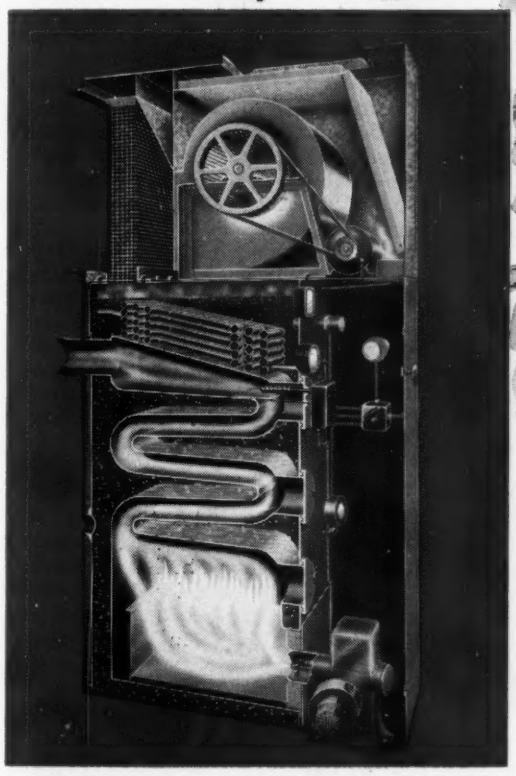
Indiana

The Sheet Metal and Warm Air Heating Contractors' Association of Indiana announces that they are postponing their annual convention from February 6 to February 12 and 13, in courtesy to the Wisconsin convention which is to be held February 5 and 6, 1945.

Homer Selch, Secretary



← THIS OR THIS? →



Dealers in oil or gas fired heating equipment need no longer lose time, money and patience under the burden of huge and cluttered parts inventories . . . not if they're Penn dealers. Every Penn Packaged Heating Unit, whether boiler-burner, forced warm air or split system, reaches the dealer completely factory pre-fabricated . . . boxed in one crate . . . and ready to pick up, set down, and plug in. Penn dealers sell from a complete line of capacity-rated packaged units. The Penn way is exclusive, patented and modern as tomorrow. Write today for "The Story of Penn Packaged Heat." 35 Fruitville Road, Lancaster, Pa.

PENN HYDRO-AIRE UNITS

Cut-away section of Hydro-Aire (split system) shows how all parts and controls are built-in at the factory.

Cold, dusty air is drawn in through two large filters, cleaned and humidified. Steam heats the completely shielded copper radiator through which all air is blown directly into ducts.

Every heated boiler part is surrounded by heavily insulated water; no wasted heat. Long backward and forward fire travel ups efficiency.

Hydro-Aire makes possible combining warm air with steam or hot water radiation in kitchen or bathroom to avoid odors. Year-round hot water cost compares favorably with other methods, eliminates extra basement equipment.

OIL OR GAS* BURNER

Size	B.T.U. at Bonnet	C.F.M.	Max. Allowed Coils		Dimensions Overall Inches		
			Tank Gal.	Tankless GPM	L	W	H
S-70	70,000	900	66	5	40	21	67
S-90	90,000	1,000	66	5	40	21	67
S-100	100,000	1,400	66	5	40	21	67
S-120	120,000	1,400	66	5	40	21	67

* Roberts-Gordon A.G.A. Approved Burner.

Packaged by PENN

BOILER BURNER UNITS — AIR CONDITIONER UNITS — JOHNSON WATER HEATER — HYDRO-AIRE (Split System)

PENN BOILER and BURNER MANUFACTURING CORP.

LANCASTER, PENNSYLVANIA

NEW PRODUCTS

For your convenience a number has been assigned to each item. Circle the items in which you are interested on the coupon on page 108 and mail to us.

△ Indicates manufacturer not listed in 1944 Directory.
● Indicates product not listed in 1944 Directory.

△ 71—Soldering Stand

Ess Specialty Corporation, Bergenfield, N. J., has developed a new model SS10 soldering stand for greater protection against injurious fumes, hand

fatigue, eye strain, etc., to increase soldering production and efficiency.

Model SS10 is supplied with a cast bracket for mounting on assembly tables or can be supplied mounted on a wood base. The fume stack is 3 by 9¼ by 32 inches high. The shield is fitted with a plate glass window or with a magnifying glass for small work. The exterior is finished in black crackle while the underside of the hood is finished in white to reflect all the light possible.

◆

△ 72—Missing Link

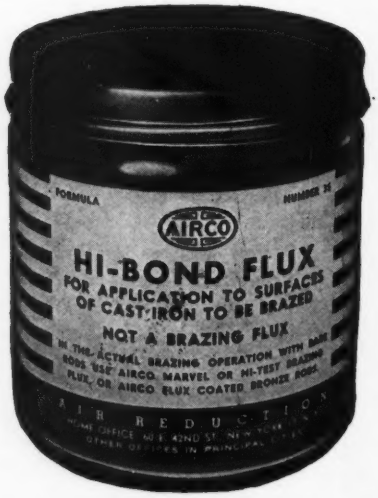
Mid-States Equipment Company, 2429 S. Michigan Avenue, Chicago 16, Illinois, offers the "Missing Link" Hi-Frequency welding unit, which permits electric welding of 22-gauge as well as heavy gauge metals, using

any type of welding rod—steel or alloy, bare or coated. The arc starts automatically before the rod touches the work, and keeps going.

The Missing Link can be incorporated into any electric arc welder A.C. or D.C., at low cost.

73—Tinning Cast Iron

Air Reduction Sales Company, 60 East 42nd Street, New York 17, N. Y., has developed a flux designed to promote uniformly successful tinning of cast iron prior to brazing. The manufacturer states that this flux, known as Airco HI-BOND, overcomes the difficulties encountered in tinning cast iron due to its graphitic nature and makes possible satisfactory tinning of



cast iron especially of high carbon and silicon content or low combined carbon analysis.

The flux *does not* take the place of the regular flux used for the actual brazing operation. HI-BOND Flux may be applied as a water-mixed paste or as a powder sprinkled on the surface which has already been heated to the required temperature. It is packed in 1-lb. glass containers.

◆

74—Electrode Holder

The Lincoln Electric Company, 12818 Coit Road, Cleveland, Ohio, announces a new holder for welding electrodes, light in weight (22 ounces) and low in cost.

Having a current rating of 300 amperes with ample capacity for overload, the new holder will handle various sizes of electrodes ranging from 1/16-inch diameter to ¼-inch diameter inclusive.

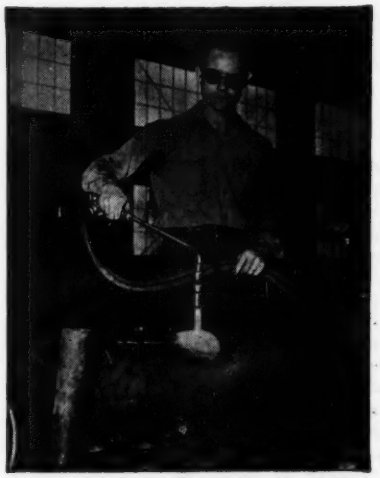
Jaws, made of high conducting and wear resisting copper alloy known as "Lincalloy", will withstand rough treatment and are fully guarded from contacting the work by durable spring steel insulating guard that is easily replaceable. The trigger of the holder is of molded, heat-resisting inorganic material.

Other features of this new type "INS" electrode holder include: hollow, air-cooled, heat-resisting fibre handle, excellent balance and good performance on both AC and DC current. The holder is designed to hold the electrode securely at any angle yet permit quick and easy change of rods.

◆

75—Torch Style 9802

Air Reduction Sales Company, 60 E. 42nd St., New York 17, announces a new medium weight heating torch (Style 9802) designed for concentrated localized heating such as is required for bending, straightening and shrinking of steel plate as well as for sil-

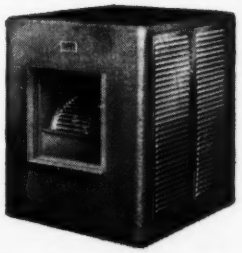


ver brazing of heavy copper plate in the manufacture of copper pipe. The torch is light in weight.

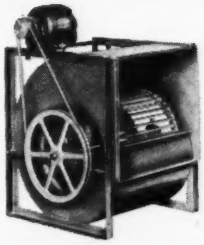
Five new multi-flame acetylene heating tips as well as two multi-flame propane heating tips are available for this torch.

Three mixers are available for the torch, viz., for positive pressure acetylene, low pressure acetylene and for propane. The available extensions include a 12 inch straight extension and 18, 24 and 42 inch angular extensions.

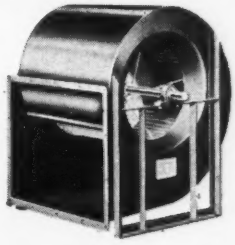
AIR COOLERS ✓



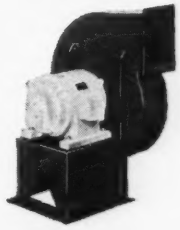
STANDARD BLOWERS ✓



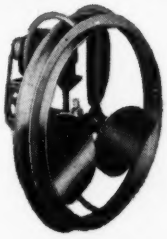
HEAVY DUTY BLOWERS ✓



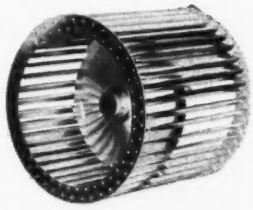
EXHAUSTERS ✓



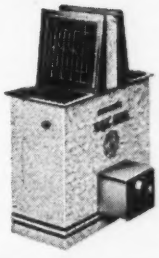
PROPELLER FANS ✓



BLOWER WHEELS ✓

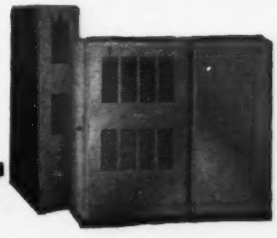


FLOOR FURNACE

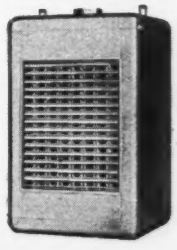


CIRCULATING HEATER

FORCED-AIR FURNACES



UNIT HEATERS



AVAILABLE NOW

Utility Standard and Heavy Duty Blowers, Evaporative Air Coolers, Industrial Exhausters and Propeller Fans are now available under WPB regulations and priorities. Gas-fired heating equipment will be available when war restrictions are lifted to permit manufacture. Illustrated literature, catalogs of performance data and details of Utility's marketing plan are available on request.

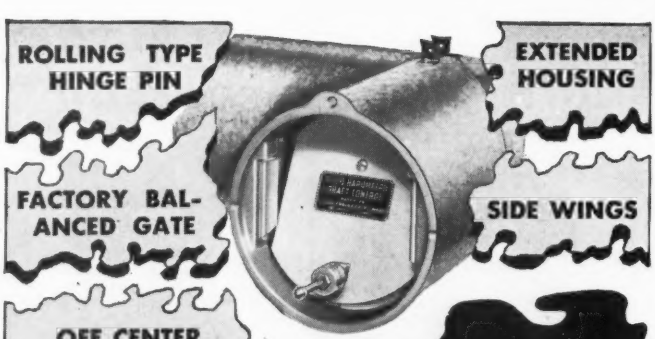
UTILITY

FAN CORPORATION

4851 S. Alameda Street

Los Angeles, California

THE UTILITY FACTORY... MORE THAN FIVE ACRES OF PLANT FLOOR SPACE



THE ANSWER TO YOUR DRAFT CONTROL PUZZLE... Field

ROLLING TYPE HINGE PIN — **MEANS** no friction, no binding, no need for oiling, no fear of corrosion. In a word, it means *no service calls* for you.

FACTORY BAL-ANCED GATE — **MEANS** *it's right*, to the last degree. At installation you make a minor adjustment, then forget the control. It's automatic as the sun!

OFF CENTER GATE MOUNTING — **MEANS** greater sensitivity to draft changes. Fuel savings up to 25% (What a sales appeal today!) are possible through this feature.

EXTENDED HOUSING — **MEANS** the gate is outside the range of fouling soot and gases. No warped *Field* gate will demand a *profitless* service call from you.

SIDE WINGS — **MEAN** more uniform opening for air; more accurate control of draft. For your customers, greater fuel savings; for you, untold good will.

● Write today for details on the complete FIELD line. Fuel savings range up to 25%. Installation is quick, easy — no service calls. Install the finest, the Field.

Fuel Saving Starts With CONTROL — Field — CONTROL DIVISION of H. D. CONKEY & CO. MENDOTA • ILLINOIS

Association Activities . . .

Sheet Metal Distributors

The 34th semi-annual meeting of The National Association of Sheet Metal Distributors was well attended and the program interesting. At the closing session, the following officers were elected to serve for the ensuing year:

President—Bruce Haines, E. E. Souther Co., St. Louis
Vice President—A. M. Vorys, Vorys Bros., Inc., Columbus, Ohio
Vice President—Wm. A. Vernier, Superior Safety Furnace Pipe Co., Detroit

To fill the unexpired term of Mr. Vorys on the Executive Committee, John P. Speck of the Tiffin Art Metal Co., Tiffin, Ohio, was elected.

To serve for the terms expiring in 1947, the following were elected:

Raymond A. Conway, William A. Conway, Inc., Baltimore
Jos. A. Peterman, Sheet Metal Mfg. Co., Brooklyn

A report of the proceedings will be issued in the near future. The speeches and discussions contain valuable information regarding postwar planning and reconversion, as well as other current problems.

Thos. A. Fernley, Jr., Secy-Treas.

◆

South Bend

The Saint Joseph Valley Furnace and Sheet Metal Contractors Association, Inc., has been organized in South Bend, Indiana, with 37 paid-up members out of a possible forty. The organization started out with the idea in mind of having each contractor licensed. The city building code is being changed to conform with modern designs and material, and looking forward to the future. City licensing will be in effect in the next few months.

Officers and Board of Directors, are as follows:

President—J. R. Walker, South Bend.
Vice President—Russell Sisson, South Bend.
Secretary—Oscar Frank, South Bend.
Treasurer—Bob Lauber, South Bend.
Directors—Andy Anderson, South Bend.
Andrew Troeger, South Bend.
George McLean, South Bend.
Martin DeWeert, Mishawaka.
O. L. Ostheimer, South Bend.

J. R. Walker, President.

◆

Philadelphia

The Association of Roofing, Metal and Heating Engineers of Philadelphia Board of Directors met at the Hotel Lorraine on July 20th and appointed Russell H. Readinger as permanent secretary.

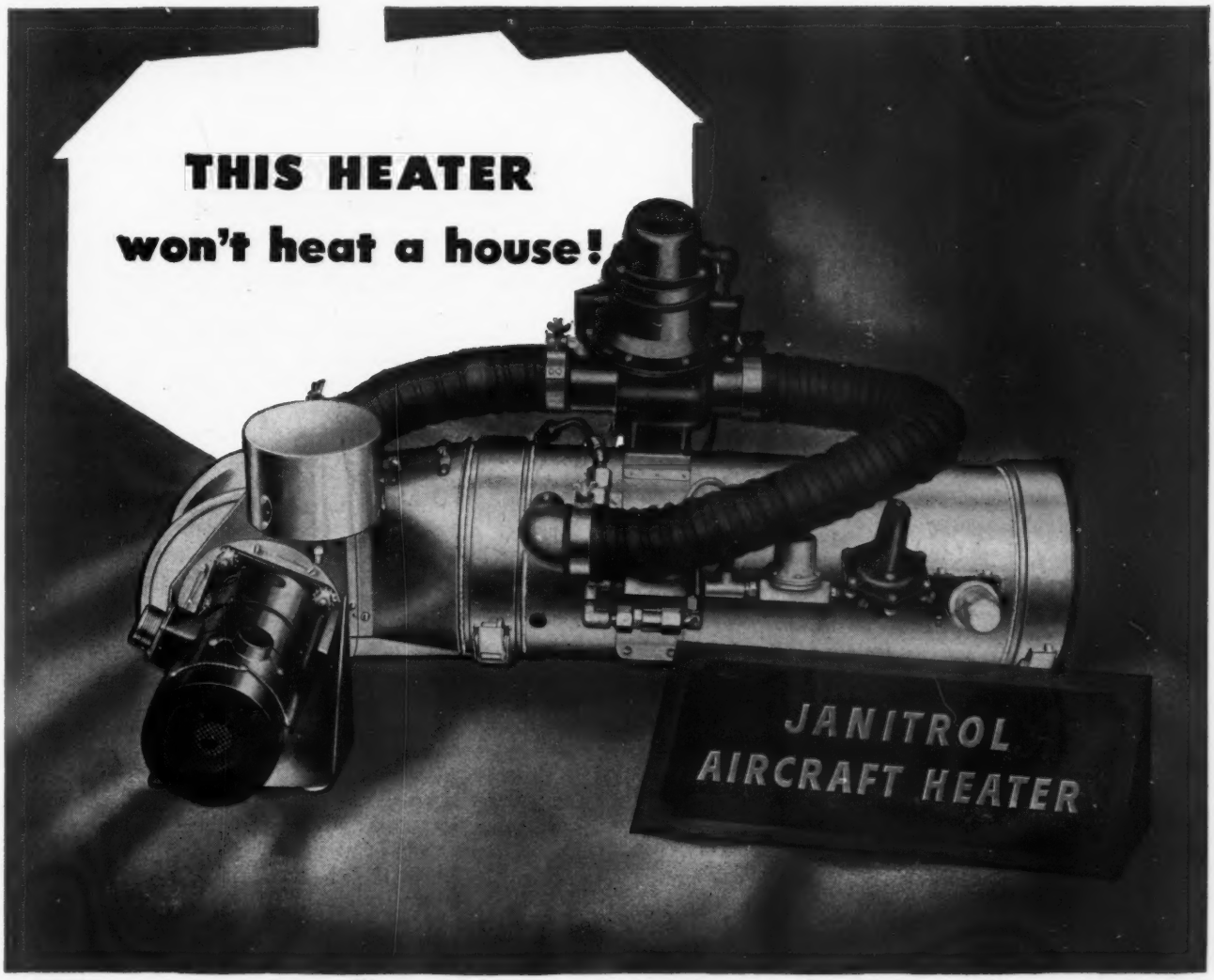
The new secretary is a Public Relations Consultant and is handling this type of work for 15 major industrial firms. He has served as an editor, publisher, sales and promotional executive and as a public relations man. He has been active in the Philadelphia and Pennsylvania State Junior Chambers of Commerce, and is a member of the National Industrial Advertisers Association.

The directors of the association have invited a number of manufacturing and supply firms to individually "take over" the educational part of the association's monthly meetings, held on the fourth Monday at the Hotel Lorraine.

The first of these meetings was held in May with W. F. Potts, Sons & Company as sponsors. The meeting was well-attended, all present enjoyed the talk by Mr. Muller of this firm on their postwar activities and the refreshments that followed. The next of these meetings, aside from the outing in June, was held on September 25th, with the Stelwagon Manufacturing Company as sponsor. Stelwagon presented an interesting and original "Information Please" type of program, featuring a board of real experts from the fields of roofing, heating and insulation.

The October meeting will be held on Monday, October 23, at the Hotel Lorraine, and after a short business meeting beginning at 8 p.m., the program will be turned over to Berger Brothers Company—sponsors for the evening.

R. H. Readinger, Secretary



THE heater you see above was especially designed for aircraft . . . to meet the exact requirements and performance characteristics of certain types of planes.

For this service—extreme lightness and compactness is more important than long life. Fuel had to be restricted to the same gasoline that powers the plane's engines.

In these heaters air passes over heating surfaces at about 5,000 feet a minute, compared to 1,000 feet a minute for conventional forced warm air furnaces. Noise from terrific air velocities is not objectionable because it's drowned out by the roar of powerful engines.

These circumstances are so different from those of house and industrial heating that it's difficult to imagine why some postwar dreamers predict home heating from units tucked away in a bathroom medicine cabinet or a kitchen drawer.

Here's the simple truth.

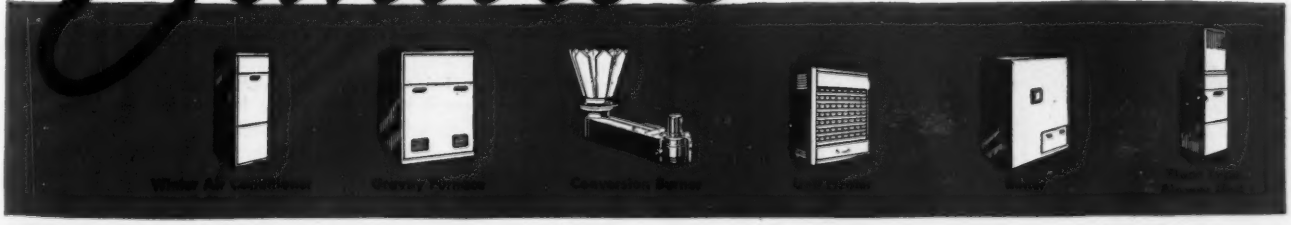
Janitrol combustion engineers in their development work on aircraft heaters have found new uses of alloy sheet steel . . . new methods of heat transfer . . . that can be applied to gas furnaces to further improve their performance and efficiency over other types of fuel and heating.

These advancements are being incorporated in new industrial and home heating equipment now going through exhaustive laboratory tests and study in field installations. These new developments will further assure Janitrol's position of leadership in the gas heating field.

So, look to Janitrol for the latest and greatest improvements in gas heating equipment . . . not just ideas, but sound engineering design and construction that's always practical. Write today for complete equipment descriptive data.

SURFACE COMBUSTION • TOLEDO 1, OHIO

Janitrol GAS-FIRED HEATING EQUIPMENT



Four-way efficiency makes Gleason-Avery Thermostats *dependably accurate*... assures reliably controlled heating ALWAYS.

★ EASY OPERATION—Finger-tip adjustments, synchronized settings make every G-A Thermostat easy to set, easy to read. One-degree sensitivity.

★ TROUBLE-FREE PERFORMANCE—G-A Straight Line Control means NO SPROCKETS or ROTATING ARMS to get out of order, NO CHAIN-TANGLING.

★ POSITIVE SAFETY—Completely automatic; no danger from overheating or through power failure.

★ SIMPLE INSTALLATION—Damper motor can be mounted in any position; 2-wire low voltage control.

Attractively styled in lustrous Mirror-Lite. Especially designed for hand-fired heating plants.

No. 130 Furnace Sentry Unit Package for hand-fired domestic heating systems is complete with thermostat, damper motor and all accessories, ready to install. List price—$19.50. Direct orders accepted when accompanied by your wholesaler's name.

Approved by Anthracite Industries Laboratory

Gleason-Avery, INC.
AUBURN, N. Y.
A RELIABLE NAME IN TEMPERATURE CONTROLS

Association Activities . . .

Illinois

AT THE Sheet Metal Contractors Association of Illinois convention last April, it was decided the board of directors should hold meetings during the year at different points throughout the state, inviting to the meeting the local association active in that territory. The first such meeting was held in Aurora on October 26 with the Fox Valley Furnace and Sheet Metal Contractors Association as guests.

At the board of directors' meeting in the afternoon, the Illinois state association passed the resolution against bid peddling adopted by the Sheet Metal Contractors National Association. This resolution asks the American Institute of Architects and the Associated General Contractors to suggest to members that the acceptor of a bid should publish when general contract bids are opened the names of all sub contractors. The Illinois association will send a copy of the resolution to the Illinois state chapter of A.I.A. and A.G.C.

The board of directors also passed a resolution asking that furnace blowers be transfered in WPB from General Industrial Equipment Division to Plumbing and Heating Division and that furnace blowers be considered as essential for fuel saving and comfort as hot water circulating pumps and that production of furnace blowers be freed and blower manufacturers be placed on motor producers schedules to receive necessary fractional horsepower motors. This resolution is to be sent to WPB.

It was decided to hold the Illinois state convention in Peoria, probably in April, 1945.

The state board of directors tendered the Fox Valley members a chicken dinner in the evening and President Ed. Pluth explained the need for more members in the state association. President Pluth invited every Fox Valley member to join the state. In suggesting accomplishments which have made membership in the state association worth while, president Pluth pointed to the state occupational tax ruling obtained by the association as a typical state association effort which directly benefits every contractor in Illinois. Details of this tax ruling are published in the Association Activities section of this issue.

President Stowell of the Fox Valley association stated that his organization has been helping contractors for some eleven years and described some of the accomplishments like the furnace and sheet metal estimating sheets and suggested cost sheets prepared several years ago. He said that association membership cultivates friendship between business competitors and educates all members in better ways of doing business.

CONVENTIONS AND MEETINGS

1944

Dec. 13-14—National Warm Air Heating & Air Conditioning Association. Annual. Statler Hotel, Cleveland. Geo. Boeddener Man. Dir., 145 Public Square, Cleveland 14.

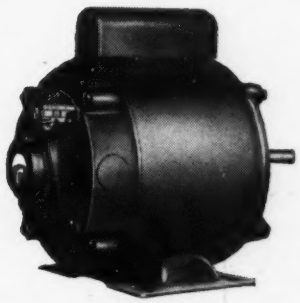
1945

Feb. 5-6—Sheet Metal Contractors Association of Wisconsin. 31st Annual. Hotel Schroeder. Paul L. Biersach, Secy., 225 E. Michigan, Milwaukee.

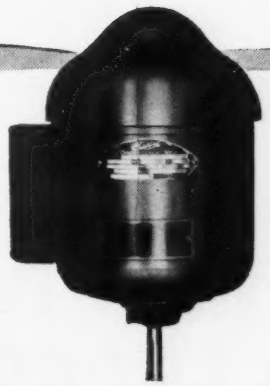
Feb. 12-13—Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc., Indianapolis. Homer Selch, Secretary, 946 Hosbrook, Indianapolis 3, Indiana.

GREATER AIR CONDITIONING COMFORT

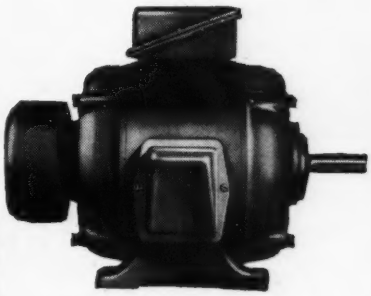
Demands the Quiet Operation of CENTURY Capacitor Motors



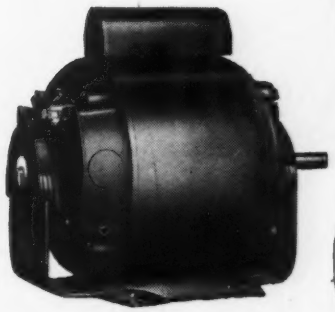
Rigid Base Capacitor Motor, 1/6 Horsepower, 1750 RPM.



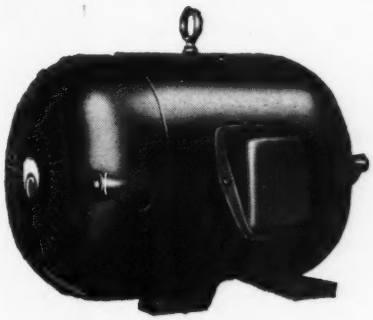
Vertical Capacitor Motor, 1/6 Horsepower, 3500 RPM, with face type end bracket.



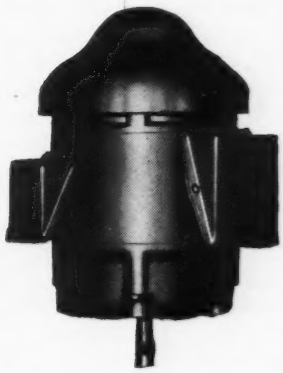
2 Horsepower, Horizontal, Capacitor Motor.



Cushion Base Capacitor Motor, 1/4 Horsepower, 1750 RPM.



Totally Enclosed Fan Cooled, Capacitor, 10 Horsepower Motor.



Vertical Capacitor Motor, 3 Horsepower, 3500 RPM.

Century motors for heating, ventilating, and air conditioning equipment are famous for their quiet operation. That's why so many of them are being used by the industry.

They start quietly—no quick jerks that create noise and wear out equipment. They come up to speed smoothly and easily, but with full power — yet without whines or groans. And they run just as smoothly and quietly throughout their long life.

For single phase applications, Century Capacitor motors are particularly well suited to automatically controlled constant or multispeed applications, such as: refrigeration compressors, furnace fans, blowers, stokers, pumps, unit heaters, coolers, and similar heating, cooling, and ventilating equipment.

Century engineers have had an unusual amount of experience in the air conditioning field, and are well equipped to help you select the correct motors to meet your needs.

Century motors are available up to 600 horsepower.

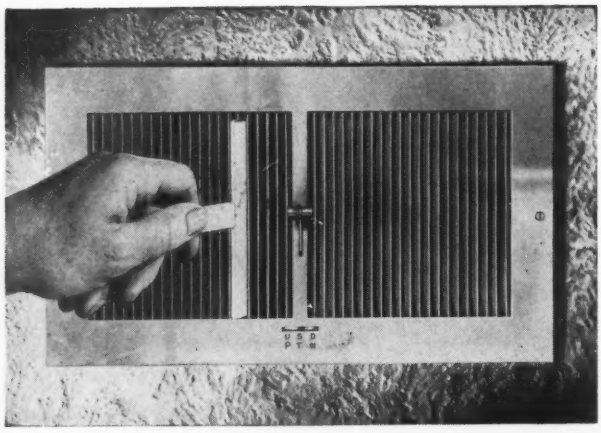
Call in a Century engineer today.

CENTURY ELECTRIC CO., 1806 Pine St., St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

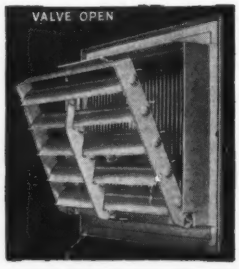
Century C MOTORS

395



FOR GREATER EFFECTIVENESS FROM A. C. EQUIPMENT . . . USE H&C No. 75 REGISTERS

with THE INCOMPARABLE TURNING BLADE VALVE



REGISTERS are a small part of the cost of an A.C. installation, but they govern the distribution of the air flow. And hence, the final results are no better than the registers you use. You can't explain cold spots to the satisfaction of the customer.

The H&C No. 75 design gives you a thoroughness of distribution that no other register can provide, for no other register has the TURNING BLADE VALVE. This valve when open extends back the full depth of the duct, smoothly dividing the air flow with equal velocity to every portion of the register face. The result is less turbulence, less resistance and better distribution to the farthest parts of the room. And that's a plus that costs you nothing, for the No. 75 is priced the same as the ordinary double deflection register. When building once again gets underway you'll find it pays handsomely to standardize on these registers.

Items now being manufactured: Gravity Nos. 210, 265, 130, 330, 345, 623, 653, 550, 2250: A.C. Designs Nos. 69, 74, 75 and 88. Also complete accessory line. See catalog No. 42 for details.

H&C

HART & COOLEY MANUFACTURING CO.

World's Largest Manufacturers of Registers, Grilles, Furnace Accessories

HOLLAND • MICHIGAN

Association Activities . . .

St. Louis

Associated Sheet Metal, Air Conditioning and Heating Contractors of St. Louis, Incorporated, started their 1944-1945 on September 11th, after a two-month vacation.

Meetings are now held on the second and fourth Tuesday of each month, at the Kingsway Hotel, 108 N. Kingshighway. Officers and members believe two meetings a month will enable the group to keep in better contact with each other and conditions in general.

It is believed that every shop in St. Louis is swamped with work. Furnaces are hard to get and also sheets, but all-in-all things are not too bad.

The association invites shops in and around St. Louis to come to the meetings and get acquainted.

Wallace Cavallo, Secretary, 4351 Osceola Street,

◆

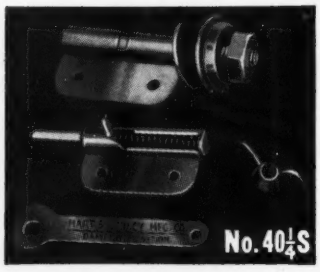
Wisconsin

The monthly meeting of the Sheet Metal Contractors Association of Wisconsin was held at Room 108, 225 E. Michigan St., Milwaukee on October 6th with President A. C. Mantei, presiding.

Two resolutions sent by the Wisconsin State Council, Sheet Metal Workers International Association regarding servicemen returning from the war were carefully considered and approved, and the Wisconsin State association will co-operate with this organization

Cooperative Buying was freely discussed and considered inadvisable as the association could not operate without formulating a separate corporation.

H&C DAMPER REGULATOR SETS



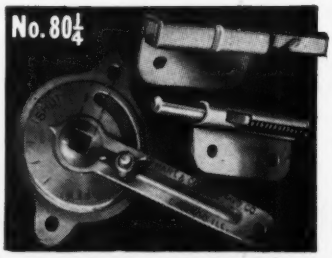
ECONOMY TYPE. Three ways to install: 1. With lock nut but without handle (for tamper-proof setting). 2. With handle and lock nut. 3. With handle and wing nut. Nut prevents damper vibration. Handle always indicates position of damper (Patent 2,146,142). Furnished with handy snap end bearing. Complete set in carton. Made only with ¼" bearings.

LIST PRICE.....No. 40¼S.....$0.30

BRACKET TYPE. Nut holds damper securely, preventing vibration. Handle which indicates position of damper, may be left in place permanently or removed after adjustment (to prevent tampering). Snap End Bearing on ¼" size, Solid Bearing on ⅜" size. Each set individually packaged.

LIST PRICES.....No. 50¼.....$0.40

No. 50⅜ $0.60



DISK TYPE. Like all H&C sets, this set is equally adaptable to splitter or regular dampers. Snap End Bearing on ¼" size, Solid Bearing on ⅜" size. All parts are rust proofed. Complete set in carton.

LIST PRICES.....No. 80¼.....$0.40

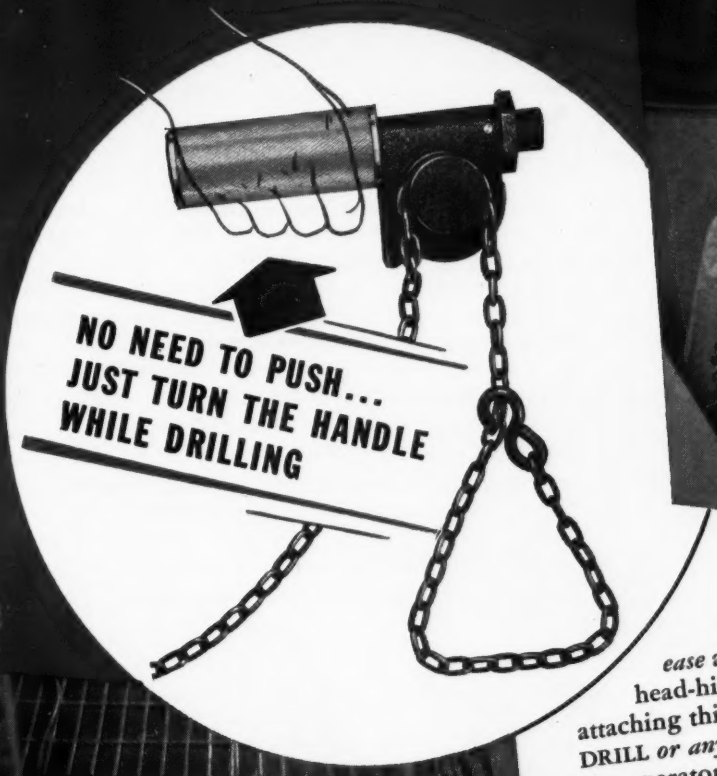
No. 80⅜.....$0.60

See your jobber or write for literature and sample.

HART & COOLEY MANUFACTURING CO.

HOLLAND, MICH. · PHILADELPHIA OFFICE: 1600 ARCH ST.

MAKE ANY DRILLING JOB in any position EASIER with this *Pressure Handle* on a SKILSAW DRILL!



● Now you can drill with *extra ease* and *extra safety* in any position . . . head-high, overhead or on ladders . . . by simply attaching this Pressure Handle to your SKILSAW DRILL *or any make of drill.* Pressure Handle gives the operator complete control of drilling pressure at all times . . . eliminates twist drill breakage . . . saves the time of an extra man with ropes or chains to hold the drill.

Fits SKILSAW DRILL Models "64", "80", "82", "83", "101", "103", "121", "123", "141", "143", and all other makes of electric or pneumatic drills of from ⅜ in. to 1 in. capacity in steel.

Sold Nationally Through Skilsaw Distributors for $30.

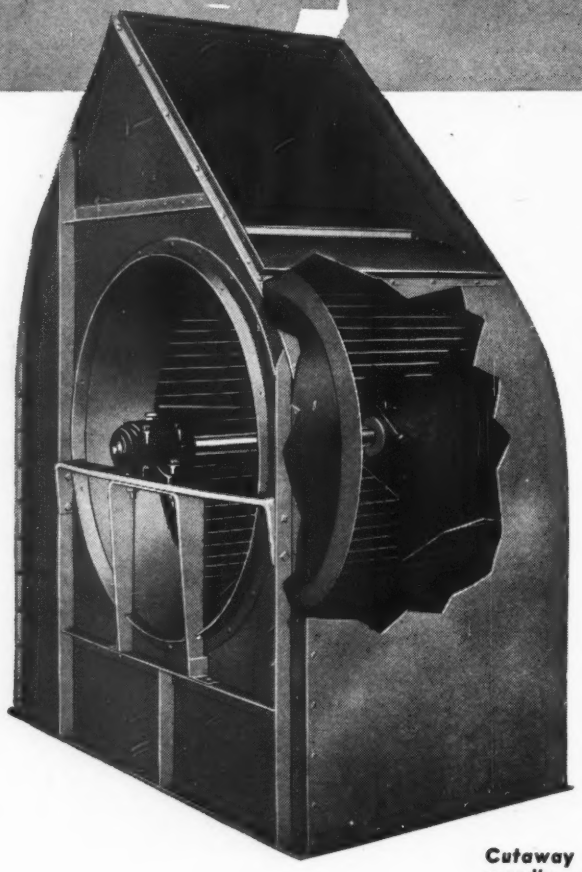
Ask your distributor today for a demonstration of this Pressure Handle on your own work.

SKILSAW, INC.
5033-43 Elston Avenue, Chicago 30, Ill.

Sales and Service Branches in All Principal Cities

SKILSAW PORTABLE ELECTRIC TOOLS
MAKE AMERICA'S HANDS MORE PRODUCTIVE

Herman Nelson Centrifugal B



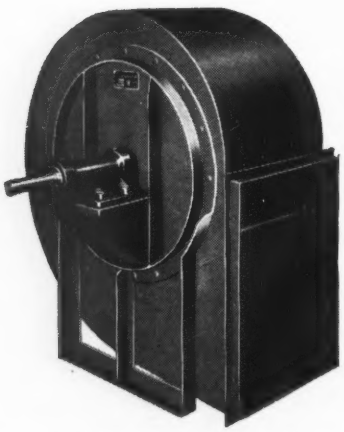
. . . for heating, cooling, ventilating, air conditioning and process applications

Today practically every heating, cooling, ventilating, air conditioning or processing problem calls for the movement of air. Often this problem of air movement can best be solved by the use of a blower. Not just any blower, but a blower designed and constructed for the performance required by a particular application.

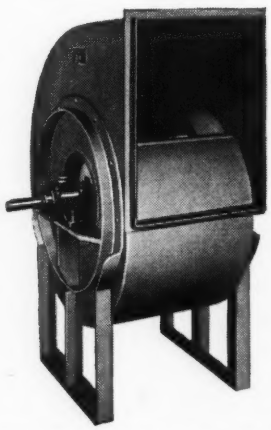
The Herman Nelson Corporation, manufacturer of blowers for over thirty years, is in a position to furnish blowers for most of these applications. Herman Nelson blowers with wheel diameters from 6″ to 73″ deliver from 250 to 308,200 cu. ft. of air per minute. Arranged for either belt or direct drive, they are available with forwardly or backwardly curved blades. Both single inlet single width and double inlet double width blowers may be operated against static pressures up to 5″ W.G. and will handle air up to 700° F. They are available with top horizontal, bottom horizontal, up blast, down blast, or angular discharge and either clockwise or counter-clockwise rotation. If we haven't the blower for your application, we will tell you.

The next time you have a heating, cooling, ventilating, air conditioning or processing problem, contact the Herman Nelson distributor in your locality or write to us and we will have a Herman Nelson Product Application Engineer contact you.

Cutaway view of a forwardly curved blade SI SW, Arrangement 3, angular discharge, Herman Nelson Blower.

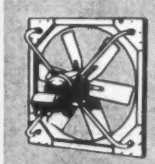


Forwardly curved blade, SI SW, Arrangement 2, bottom horizontal discharge, Herman Nelson Blower.



Forwardly curved blade, SI SW, Arrangement 3, top horizontal discharge, Herman Nelson Blower.

Backwardly curved blade, SI SW, Arrangement 1, bottom horizontal discharge, Herman Nelson Blower.



Herman Nelson Direct Drive Propeller Fans

Herman Nelson Belt Drive Propeller Fans

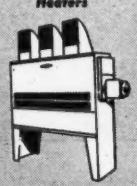
Herman Nelson Horizontal Shaft Propeller-Fan Type Heaters

Herman Nelson Vertical Shaft Propeller-Fan Type Heaters

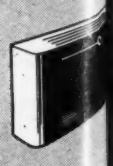
Herman Nelson Belt Drive Unit Blowers

Herman Nelson Direct Drive Blowers

Herman Nelson De Luxe Heaters

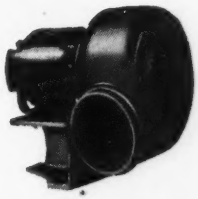


Herman Nelson Blower-Fan Type Heaters

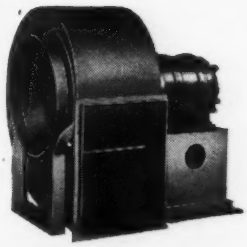


Herman Nelson Unit Ventilators

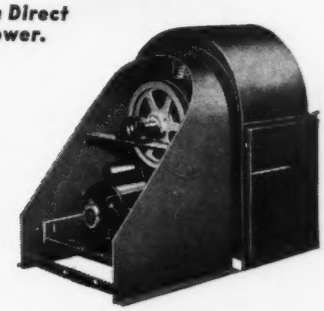
Blower Fans



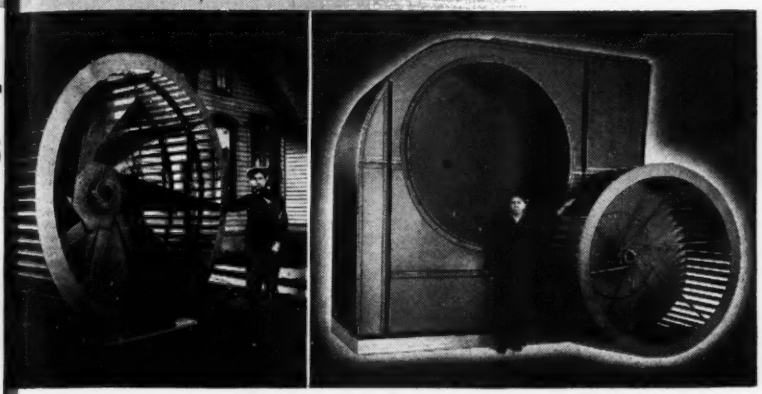
Herman Nelson Direct Drive Unit Blower.



Herman Nelson Direct Drive Unit Blower.

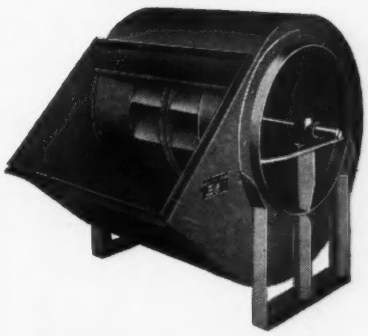


Herman Nelson Belt Drive Unit Blower.



OLD TIME, special SI SW Herman Nelson Blower built in 1917 for American Smelting and Refining Company. Capacity 272,000 c.f.m. at 200 RPM; belt-drive; overhung wheel; the water-cooled bearings weighed 3,200 lbs.; wheel diameter 120", width 64"; height of housing 240"; outlet, 122" x 78".

MODERN, standard SI SW Herman Nelson Blower, Type H, Unit 12, built for Central High School of Needle Trades, N. Y. City. Capacity 54,400 c.f.m. at 142 RPM; belt-drive; centerhung wheel (Arr. 3); ball bearings; wheel diameter 75", width 37½"; height of housing 123"; outlet 80¼" x 56¼".



Backwardly curved blade, DI DW, Arrangement 3, bottom angular up discharge, Herman Nelson Blower.

Forwardly curved blade, SI SW, Arrangement 1, up blast discharge, Herman Nelson Blower.

Backwardly curved blade, DI DW, Arrangement 3, top horizontal discharge, Herman Nelson Blower.

Part of a shipment of 1015 Herman Nelson Blowers used in heating trailers for the armed forces.

The Herman Nelson Corporation is a member of the National Association of Fan Manufacturers. Herman Nelson blowers are tested and rated in accordance with the standard test code as adopted by the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers.

THE HERMAN NELSON CORPORATION

Manufacturers of Quality Heating and Ventilating Products

GENERAL OFFICES: MOLINE, ILLINOIS • FACTORIES AT MOLINE AND CHICAGO, ILLINOIS

PACKAGED *Gas Heating* CONTROLS for Homes and Industry

Automatic Control Package Set ready for installation... everything included for the positive remote control of gas fuel supply. For manufactured, mixed, natural or liquefied petroleum gas. Used on central and floor furnaces, gas radiators, gas ranges, water and wall heaters, circulators, etc. Set consists of B-60 all-gas-operated control valve; integral pilot generator for safety, ignition and source of power (no outside current required); 30 ft. wire; Trimtherm thermostat with or without thermometer and/or Timer. Setting range 50-90° F., ½° F. differential. Three types illustrated.

TIMER-THERMOSTAT SET
Maximum setting 13½ hrs.

Other types of Package Sets include: T-30 Series (containing K-3B magnetic "on and off" valve, Metrotherm thermostat, transformer, 30 ft. wire) for gas-fired boilers, floor furnaces, conversion burners, warm air furnaces, etc. T-40 Series (containing D-40 dual gas valve, dual thermostat, transformer, 30 ft. wire) for automatic hi-low-off firing. For complete specifications, request Catalog 52B from Factory Branch or Distributor nearest you, or write direct to:

GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.
BRANCHES: Atlanta, Boston, Philadelphia, San Francisco, Denver, Chicago, Kansas City, New York, Cleveland, Detroit, Dallas
Distributors in Principal Cities

Association Activities . . .

Toledo

The Toledo Sheet Metal and Roofing Contractors Association, Inc., appointed a committee to consider a proposed draft for a building code for the City of Toledo early in the year, and after thorough study of the suggested articles pertaining to warm air heating, the committee unamiously recommended that these articles be stricken, and that the Warm Air Heating Ordnance, along with Warm Air Heating Rules and Regulations for The City of Toledo in toto shall be included in the Toledo Building Code.

This recommendation has been accepted by the Building Code Committee and The Toledo Building Congress, The association committee did accept several suggested paragraphs and sentences from the code recommended, and these have been added to the association Rules and Regulations.

◆

ICI Proposed Training Program

James R. Scott of the L. J. Mueller Furnace Company, and Chairman of the Postwar Personnel and Training Committee of the Indoor Climate Institute advises that his Committee believes that their first task is to educate and sell the public on the future of heating, cooling and air conditioning industries—to develope, compile and edit material that will provide adequate, appropriate and satisfactory training programs representative of all branches of the industry and to establish relationships with proper institutions so that such material would be utilized.

In the preparation of an educational program for salesmen, engineers, servicemen and installers, the industry will have to be divided into logical component parts determined by types of equipment and types of fuel. Data on each can be obtained from the various trade associations.

After the material is collected, developed and edited, courses should be established by such institutions as Y.M.C.A., universities, utilities, trade schools, correspondence schools, the Government, short courses, Committee for Economic Development, and Federation of Sales Executives.

◆

Florida

The October 15 issue of "The Florida Roofer" published by The Roofing & Sheet Metal Contractors Association of Florida, calls attention to the "Right-to-Work" Amendment (No. 5), important to shop owners and upon which they will have an opportunity to vote on November 7.

> "The right of persons to work shall not be denied or abridged on account of membership or non-membership in any labor union or labor organization: Provided that this clause shall not be construed to deny or abridge the right of employees by or through a labor organization or labor union to bargain collectively with their employers."

This amendment was sponsored by Tom Watson, Attorney-General for the State of Florida and your association has been represented at several hearings prior to the submission of this amendment to your State Legislature.

Labor Unions in Florida are opposed to this Amendment. **The Florida Legionnaire,** the official publication of the American Legion, favors this amendment and in an advertisement in the October issue says: "It is simple Americanism."

The following is quoted from the advertisement:

"All it does is prohibit agreement between a union and an employer that his work plant be closed to all who do not pay tribute to a union for the right to hold their job.

"It simply declares the right of every man or woman to employment where employment is to be had, without regard to unions. It specifically safeguards the right to bargain collectively."

ANNOUNCEMENT

For over 30 years prior to the war, the Kresky Manufacturing Co. had produced the widely known Kresky Oil Burner and the Kresky line of oil burning appliances of which it is the basic feature.

Early in the war, our facilities were converted entirely to war production, which compelled us to suspend our regular trade. To meet war requirements, the Kresky plant was doubled in capacity and, by outstanding performance, won the coveted Army and Navy "E."

We are now approaching the completion of contracts with the armed forces. The removal of priorities has cleared the way for our regular, peacetime production. We have resumed active relations with our distributors, and are adding a substantial number in new territories.

Of prime importance is the fact that war activity did not take us out of our regular field. Our production for the armed forces consisted of Kresky Burners and Kresky Heaters. Resuming our peacetime output involves no change in equipment, nor personnel, and not an hour's interruption in our operation.

Within a minimum time, at double our pre-war capacity, we shall be producing our full line of Kresky Oil Burners and Kresky Oil Burning Appliances, and rapidly expanding their intensive distribution to a nation-wide scale.

KRESKY MANUFACTURING CO.

Established 1910

PETALUMA CALIFORNIA

IMPORTANT: Wholesalers interested in distributing Kresky Oil Burners and Oil Burning Appliances and Dealers desiring information regarding the line are invited to write us for full details.

With the Manufacturers

Milcor Acquires J. M. & L. A. Osborn

In line with plans for expanded operation after the war, the Milcor Steel Company, Milwaukee (subsidiary of Inland Steel, Chicago) has purchased The J. M. & L. A. Osborn Co., of Cleveland.

The Osborn Company is one of the country's pioneer manufacturers and distributors of sheet metal products, having been established in 1859. It operates branches in Buffalo, Detroit and Cincinnati. In serving the construction industry with sheet metal building materials its lines closely parallel those of Milcor.

Plans are to continue operations as The J. M. & L. A. Osborn Co., Division of Milcor Steel, with the present Osborn organization remaining intact. It will later be supplemented by Milcor people to handle those Milcor products not carried by Osborn.

◆

General Controls Company of Glendale, California, announce the opening of a new Kansas City Branch at 421 Southwest Boulevard, Kansas City 8, Missouri, with **Robert Courtney** in charge as Branch Manager.

◆

O'Day Heads Air Devices

Air Devices, Inc., of 17 E. 42nd St., New York, announces the election of three new officers, with **C. N. O'Day**, one of the company's founders and previously its treasurer, assuming the presidency. **Gerald F. Mannion** becomes the company's Vice President, and **George J. Sweeney** is the new Treasurer.

The reorganization is occasioned by the retirement of the former president, Jack Spalding, Jr., to devote full time to the development of food dehydration.

The L. J. Mueller Furnace Company, Milwaukee 7, announces the appointment of **Frank J. Nunlist** as chief engineer. Mr. Nunlist has been active in the Heating and Air Conditioning Industry since 1931, and has been with the Mueller Furnace Company since 1940. For approximately the past year, he has served as Acting Chief Engineer for the Company.

F. J. Nunlist

As a member of the American Society of Heating and Ventilating Engineers, he is on the Code Committee for rating heavy-duty furnaces, as well as the Technical Committee for the study of National Warm Air Heating and Air Conditioning Association installation codes.

◆

The L. J. Mueller Furnace Company, Milwaukee, has recently announced the appointment of **Frank Schryer** as Plant Superintendent.

Mr. Schryer has been prominently identified with the development and operation of modern manufacturing procedures and production line methods of assembly.

◆

A. M. Castle & Co., 1132 W. Blackhawk St., Chicago, steel distributors, has purchased **Gibbs Steel Company**, Milwaukee, John M. Simpson, President of Castle announces. The purchase becomes effective January 1, 1945.

Gibbs will be operated as a Castle subsidiary. **George Gibbs**, who founded the Milwaukee company in 1922, will continue as president.

◆

Obituary

F. H. Farquhar, secretary of the **Farquhar Furnace Co.**, died on September 25th.

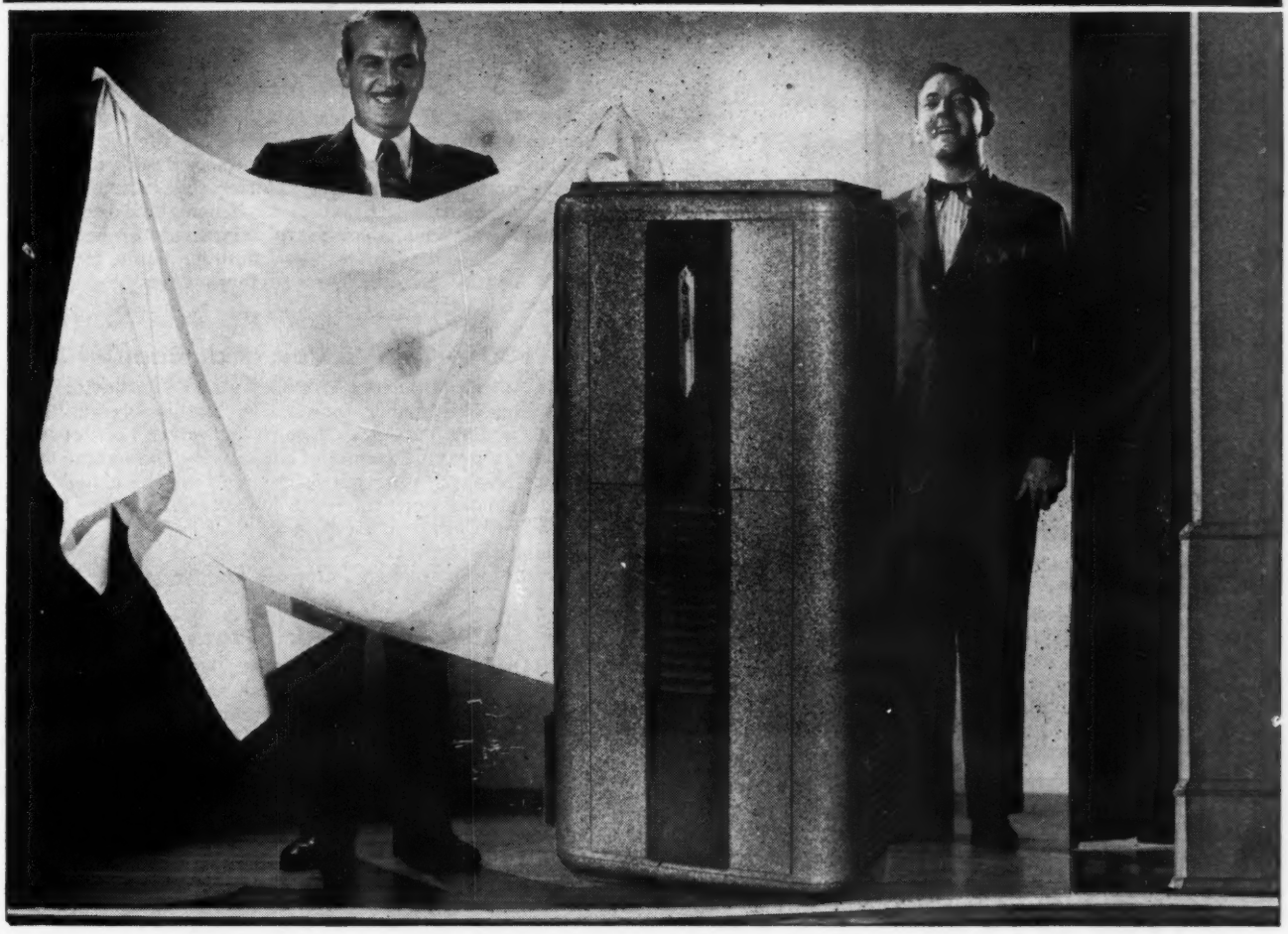
There's an **AIRTHERM Direct Fired Unit Heater in a Size to Heat Your Plant Efficiently, Economically • •**

The Airtherm Direct Fired Unit Heater is made in 6 sizes, from 300,000 to 1,700,000 BTU, to assure you efficient, uniform heat regardless of your floor plan. It spreads heat evenly as far away as 200 feet. The Airtherm can be installed in just a few hours without costly duct work, radiators, or pipes.

Airtherm Direct Fired Unit Heaters have reduced heating costs in many plants in which they have been installed. Let us work with you in planning efficient heat for your plant. Write today for bulletin describing the complete line of Airtherm Direct Fired Unit Heaters.

AIRTHERM
MANUFACTURING COMPANY
706 South Spring Avenue • Saint Louis 10, Missouri

Coleman Makes It 3 In A Row!



After Revolutionizing Two Other Types of Heating,

COLEMAN NOW PRESENTS A NEW CENTRAL HEAT PLANT!

Here comes another triumph for Coleman's 45 years of experience in better oil and gas combustion!

The first triumph came when Coleman entered the gas floor furnace field. Today, because of Coleman engineering, the floor furnace is many times the factor in heating importance it was before Coleman went to work.

Next, Coleman engineers went after the "bugs" in oil space heaters — and, with Coleman oil heaters, created a new standard of comfort.

As soon as the war is over, there will be another revolution, this time in the central heating market. You will be able to provide central plant convenience in any normal size home, with or without a basement. It will incorporate the heat engineering developments that made Coleman famous — plus many new advancements. There will be compact, easy-to-install models for gas, oil and butane fuels! Gravity and forced-air types from 50,000 to 150,000 B. T. U. capacities. There will be complete automatic comfort, too, at a price that will create sales fast.

You will want to be in on this revolution, so learn now about all the opportunities it can afford you. Write today, to Coleman Lamp and Stove Co., Wichita 1, Kansas.

A Great Advance In WATER HEATERS

Here's another field Coleman is invading — with proved methods that brought leadership! Oil, gas, butane models; 20- to 60-gallon sizes; improvements of the leadership-winning Coleman kind. Will help you get in on many jobs; and selling it with other Coleman equipment you can get the complete heating order.

THE "HOT" NAME IN HOME HEATING

ARMY E NAVY

Coleman

THE COLEMAN LAMP AND STOVE COMPANY

WICHITA 1 • CHICAGO 11 • PHILADELPHIA 8 • LOS ANGELES 54 • TORONTO, CANADA

New Literature

For your convenience in obtaining copies of New Literature use the coupon on page 108.

299—Seam-Welder Controls—GEA-4220

General Electric Company, Schenectady, N. Y., has released Publication GEA-4220, entitled "Seam-Welder Controls for Resistance-Welding Machines," containing general information, advantages, heat control, features, timing, and additional equipment for use with G-E controls.

◆

300—Punch-Lok Clamps and Fittings

The B. F. Goodrich Company, Akron, Ohio, national distributor, offers a new catalog on the Punch-Lok clamps and fittings. The feature of the catalog is the pictorial descriptions, accompanied by text of the many clamps and fittings, together with tables giving information on all sizes. Tools used in applying Punch-Lok clamps and fittings are also described.

◆

301—Commander Heavy Duty Furnace

The Peerless Foundry Company, Indianapolis 7, Indiana, is distributing a four-page folder illustrating and describing the Peerless Commander heavy-duty, boiler plate furnace with dual radiators, for heating large buildings, churches, factories, etc., using coal, coke or wood, either hand-fired or stoker operated, and capable of producing three-fourths of a million Btus.

◆

302—Moduflow Control System Engineering Guide

The Minneapolis-Honeywell Regulator Company, 2726 Fourth Avenue, South, Minneapolis 8, is distributing "An Engineering Guide of the Moduflow Control System for Home Heating and Air Conditioning" second edition, dealing with the engineering phases of the various Moduflow methods, including forced warm air heating equipment, accompanied by diagrammatic arrangements of all units for the reset and bypass methods.

◆

303—"Preserve Metal" Campaign

The Wilbur & Williams Company, 1036 Park Square Building, Boston 16, is distributing a four-page folder covering their campaign to preserve metal with their penetrating protective paints for exterior and, interior maintenance, for improving production efficiency and for improving labor relations. Totrust is suggested for hot, rusted metal stacks, and Totalume aluminum paint for rusted boiler fronts and other hot surfaces (available for war industries).

◆

304—ASHVE Research Booklet

The American Society of Heating and Ventilating Engineers, Research Laboratory, 10700 Euclid Avenue, Cleveland 6, is distributing a 32-page and cover booklet which provides a graphic means of visualizing the extent of the current research program, believing that the collection of sound unbiased scientific data is essential for the healthy expansion of the industry and the solution of the many problems.

Twenty-eight research projects are covered.

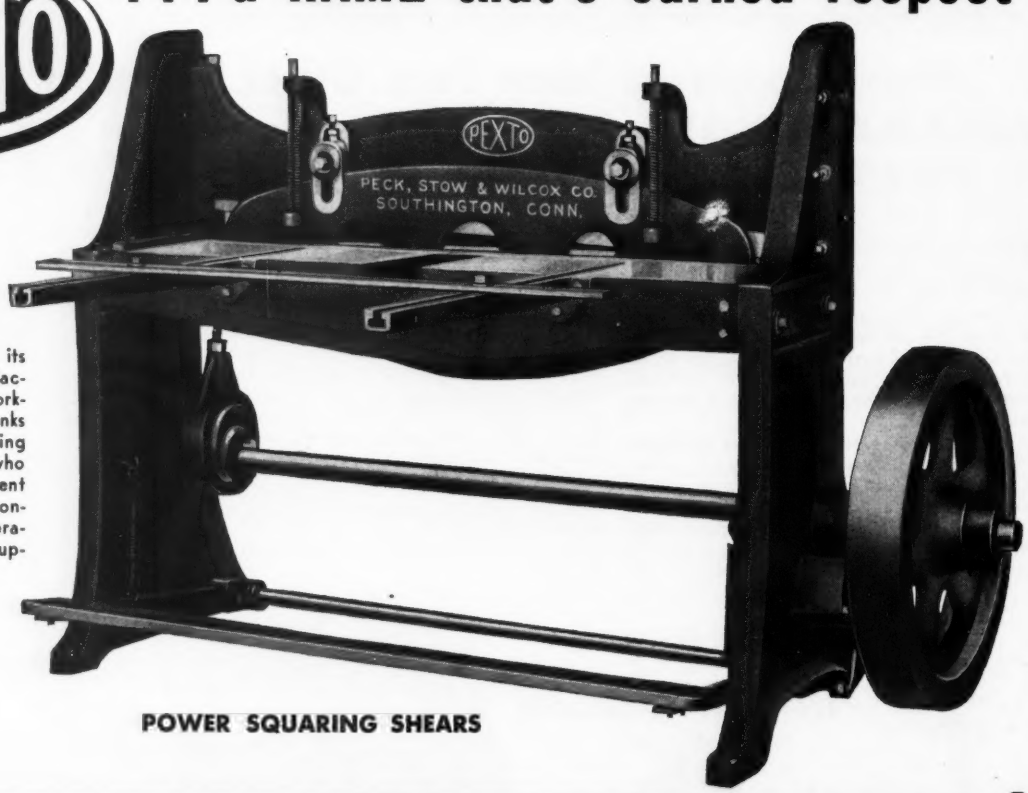
◆

305—Agitair Air Filters Bulletin

Air Devices, Inc., 17 E. 42nd St., New York 17, has released a new 24-page, 8½ by 11, bulletin—AF-44-1, describing and illustrating the complete new line of Agitair air filters for air conditioning, ventilating, heavy-duty industrial, and grease removal applications.

Two new 2-page bulletins are also available describing Agitair Type P air filters, and Agitair exhausters.

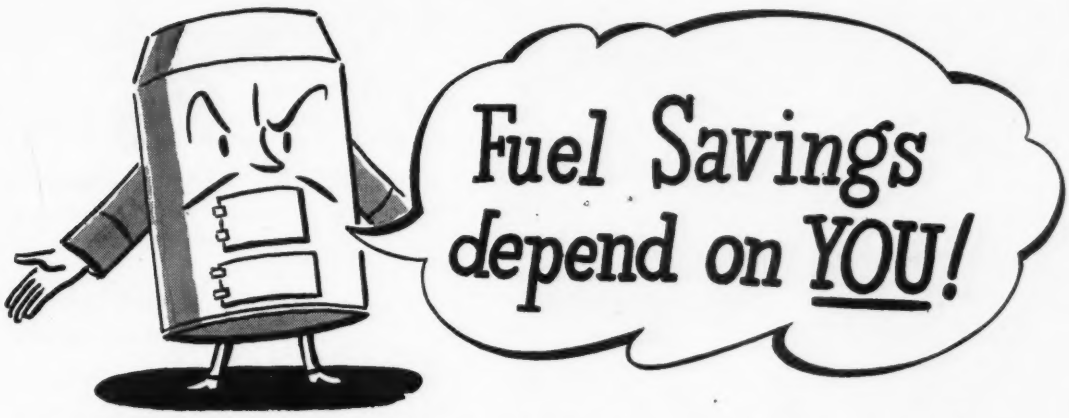
PEXTO . . . a NAME that's earned respect



PEXTO approaches its 160th year of manufacturing Sheet Metal Working Machinery . . . thanks to the ever increasing number of mechanics who respect the equipment for its simplicity of construction, ease of operation and minimum upkeep cost.

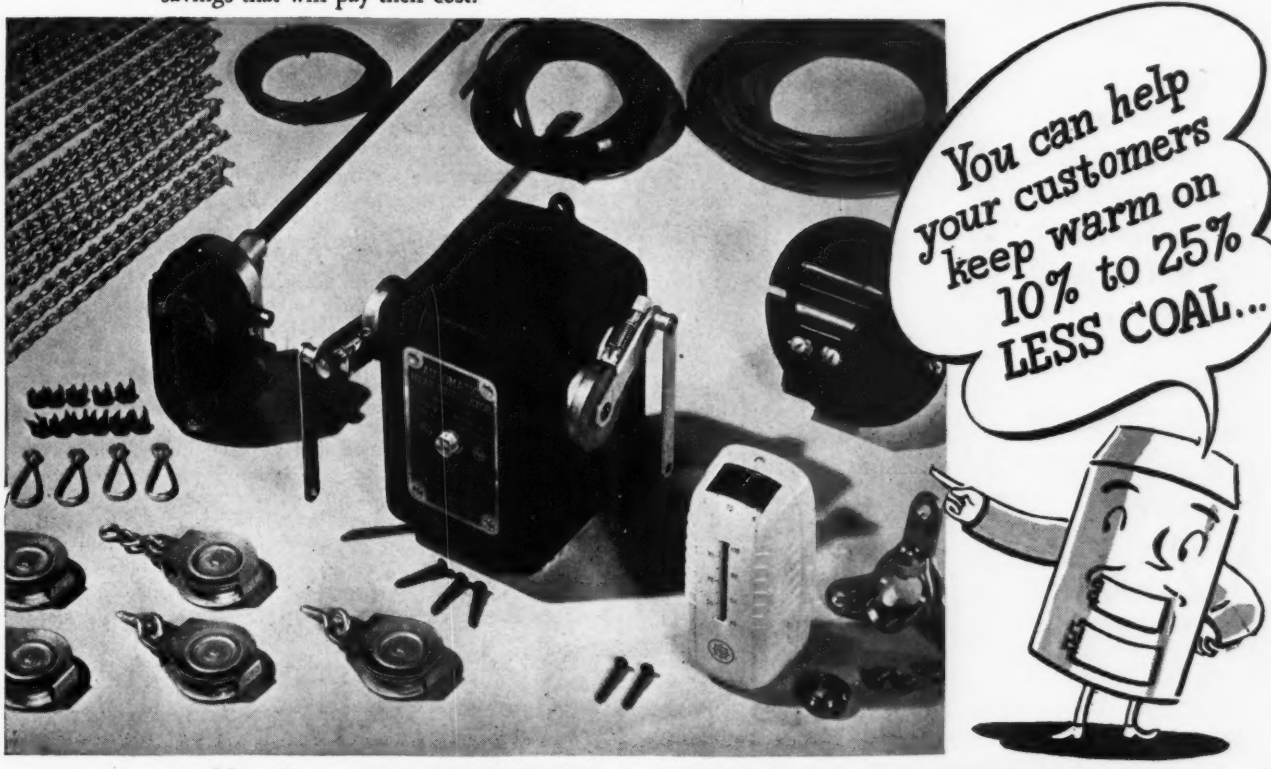
POWER SQUARING SHEARS

THE PECK, STOW & WILCOX COMPANY SOUTHINGTON, CONNECTICUT, U. S. A.



America's threatened coal shortage is *serious!* Families must find some way to make up for 10% to 25% less coal.

As the heating expert in your community *you* can help keep these families warm on less coal. Install A-P Automatic Furnace Controls on every furnace. Tell every furnace user of the danger of coal shortage, and the vital benefits of adding automatic controls — elimination of overheating, steadier room temperature, most efficient furnace operation — adding up to fuel savings that will pay their cost.



Install this A-P AUTOMATIC FURNACE REGULATOR SET

Fuel-Saving Starts With CONTROL

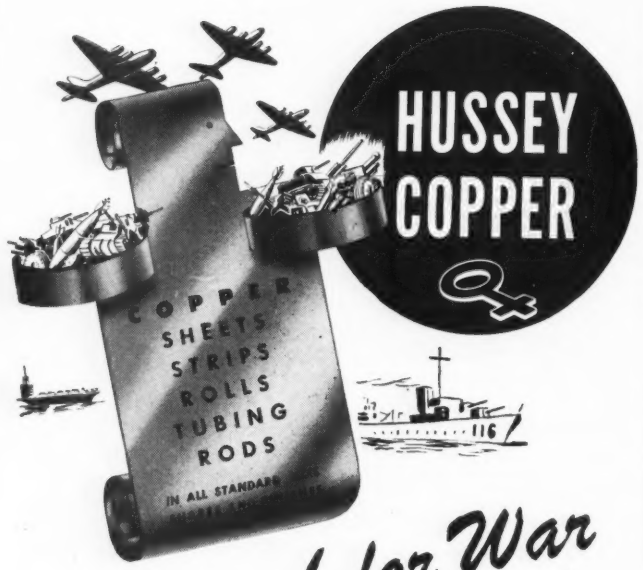
A sales opportunity that is a PATRIOTIC NECESSITY today . . .

- Fuel saving is so important that the production of Automatic Furnace Control Sets is permitted to help solve the shortage. They're available for all types of heating systems, warm air, steam or hot water. Inexpensive, easy to install. they're precision built for years of trouble-free service.
- Write today for details and prices on A-P Automatic Furnace Regulator Sets — and for ready sales helps, display cards and mailing folders.

AUTOMATIC PRODUCTS COMPANY

2470 North Thirty-Second Street, Milwaukee 10, Wisconsin

DEPENDABLE FUEL CONTROLS



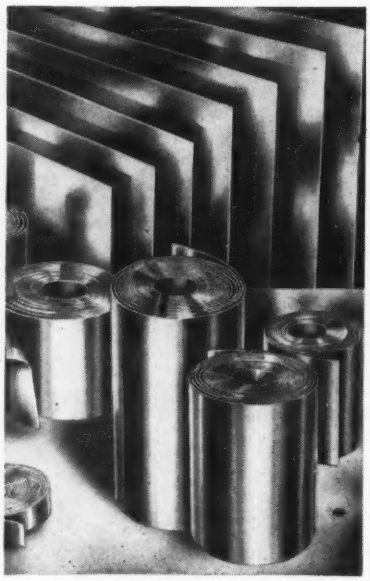
Research for War

BROUGHT OUTSTANDING DEVELOPMENTS— TO MAKE YOUR POST WAR PRODUCTS—

★ MORE ATTRACTIVE

★ MORE USEFUL

★ MORE ECONOMICAL



Hussey is still working at top speed to help win this war as quickly as possible. Meanwhile, Hussey research and engineering skill—working "overtime" to meet war pressure demands has produced several outstanding developments and improvements in manufacturing Copper and Copper products.

These new improvements will mean greater production economies, closer quality-precision-control that will prove most advantageous to you, in *your* use of Copper in even more diversified applications in the post war period.

Hussey engineers welcome the opportunity of cooperating with you in post war planning.

C. G. HUSSEY & COMPANY
(Division of Copper Range Co.)
Rolling Mills and General Offices: Pittsburgh, Pa.
Warehouses in principal cities

New Literature

For your convenience in obtaining copies of New Literature use the coupon on page 108.

306—Ups and Downs in Room Temperature

Crise Electric Mfg. Co., 2040 E. Main St., Cloumbus 16, Ohio, is distributing a small pamphlet entitled "Ups and Downs in Room Temperature" illustrating and describing the Crise automatic heat control for hand-fired heating plants.

◆

307—Heavy Duty Steel Furnace

The Majestic Co., Huntington, Indiana, is distributing a new bulletin covering their 600 Series Heavy Duty Steel Furnace—a double-welded all-steel furnace for gravity or forced air systems. Efficiency and economy features are pictured and described. Specifications are included.

◆

308—Wiring Diagram—Damper Motor

White-Rodgers Electric Co., 1208 Cass Ave., St. Louis 6, is distributing a perforated catalog sheet covering their damper control packages with a wiring diagram for damper motor installation and a diagram of connections for a warm air furnace.

◆

309—Armco Cold Rolled Paintgrip

The American Rolling Mill Company, Middletown, Ohio, presents in a booklet just published design and fabricating advantages of a special surface-treated sheet steel that takes and preserves paint.

Armco Cold Rolled Paintgrip is described as essentially a steel sheet that is given an electrolytic zinc flash and then Bonderized at the mill. Advantages are: 1. Products can be drawn or formed and painted immediately. Bonderizing after fabrication is eliminated and no surface etching is needed. 2. Cold Rolled Paintgrip will draw, form, weld, and solder readily. The Bonderized surface will not flake, peel or powder during fabrication. 3. Under normal conditions it resists rust during shipment and while in storage, either as sheets or in semi-finished parts.

Data is given on physical properties, corrosion resistance and paint life. Recommended practices for welding, soldering and finishing are described.

◆

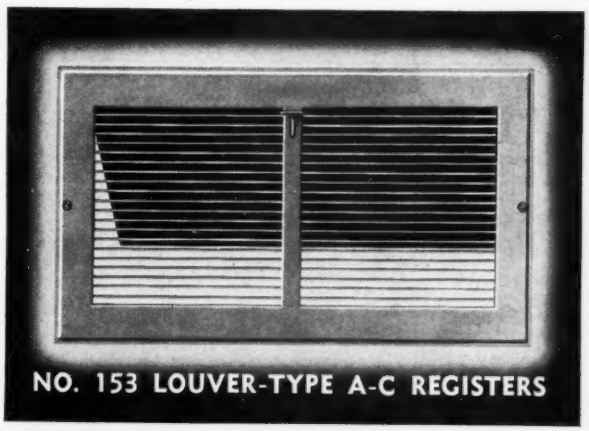
310—Controls to Save Fuel Available

The Fuel Conservation Council for War—the Automatic Controls Industry made up of Automatic Products Co., Barber-Colman Co., Bacharach Industrial Instruments Co., Bell & Gossett, Cole-Sullivan Engineering Co., H. D. Conkey Co., Crise Electric Co., C. A. Dunham Co., Detroit Lubricator Co., Gleason-Avery Co., Hays Corporation, Herske-Timmis Co., Hotstream Heater Co., Illinois Engineering Co., Johnson Service Co., McDonnell & Miller, Marsh Tri-Trol Co., Master Electric, Minneapolis-Honeywell Regulator Co., Penn Electric Switch Co., Perfex Corporation, Powers Regulator Co., Sampsel Time Control, Inc., Warren Webster & Co., White-Rogers Electric Co., and White Mfg. Co.—is distributing a four-page folder "Fuel-Saving Starts with Control."

The Industry calls to the attention of dealers and contractors that controls are available and it is up to the contractor and dealer to sell and install fuel saving controls—damper regulator sets, limit controls, barometric regulators, combustion control systems for domestic installations; and combustion control sets, thermostats, zone control sets, barometric controls, motorized valves for commercial and industrial installations. Manufacturers' Sales Helps are available.

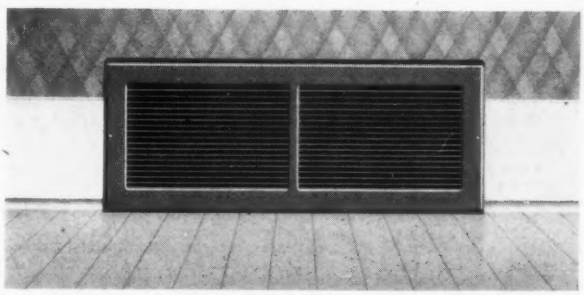
ECONOMICALLY SOUND AND PRACTICAL FOR THE MODERATELY PRICED HOME OF TODAY AND TOMORROW

Where a dignified register design is required and Low Cost is important, the No. 153 U.S. A-C Registers have no equal.



NO. 153 LOUVER-TYPE A-C REGISTERS

For the moderate and low cost type of home for today and tomorrow, the No. 153 and corresponding styles of this design of Air-Conditioning Register cannot be equalled. It affords close mesh, non-vision, perfect lever operation, and straight flow or down flow from the register as required.



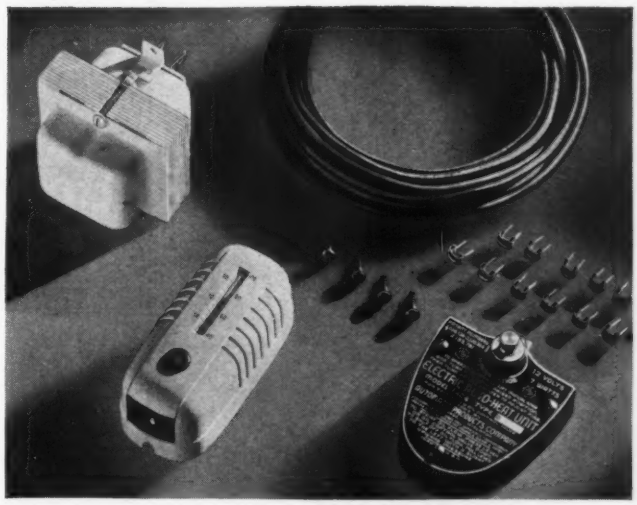
NO. 175 A-C BASEBOARD INTAKE

This style has 7/8" baseboard extension for setting in baseboards that are lower than intake height, and affords non-vision. Matches the No. 153 line perfectly.

A very representative proportion of forced-air installations will involve economy. Where directional lateral flow is not required—and straight flow is desirable—the No. 153 line cannot be equalled at any price.

Complete Your Catalog File Now With U. S. Catalogs
41AC—Air Conditioning Registers
41G —Gravity Registers
41F —Gravity & Air Conditioning Fittings

UNITED STATES REGISTER CO.
BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY



FUEL OIL CONSERVATION Offers YOU New SALES OPPORTUNITIES

Install A-P THERMOSTATIC TEMPERATURE CONTROLS on ALL Oil Burning Space Heaters using A-P Model 240-DR or UR Manual Controls

Unless you show them how to get *more* heat, *more* steady comfort out of available fuel oil, many space heater users in your community will be cold early next spring, because of needless overheating and fuel waste.

Here's your chance to make many staunch friends, an opportunity to serve — and SELL. Get in touch with all your past heater customers. Tell them how the addition of an A-P THERMOSTATIC TEMPERATURE CONTROL SET to their present heater will help stretch fuel oil enough to take them over the "hump."

Complete Sales Package — Easy to Install

The A-P Thermostatic Temperature Control Set is a complete sales package, including an Electric Auto-Heat Conversion Top for installing on top of present manual controls, an accurate wall thermostat, transformer, wiring, staples and full instructions. It's easy and simple to install on most oil burning space heaters, inexpensive, more than pays its cost in fuel savings and steadier comfort. *No priorities needed.*

Tie in NOW on this vitally essential program — for ready extra sales! Write for bulletin and prices on A-P Thermostatic Temperature Control Set No. 240-ED.

AUTOMATIC PRODUCTS COMPANY
2452 NORTH 32nd STREET
MILWAUKEE 10, WISCONSIN

Fuel-Saving Starts With CONTROL

DEPENDABLE OIL CONTROL VALVES

This Exclusive PREMIER Franchise Assures You A Prosperous, Protected Independent Future

CAST IRON FURNACES

STEEL FURNACES

WINTER AIR CONDITIONERS

OIL BURNERS

BLOWERS

STOKERS

HUMIDIFIERS

In many communities, Independent Furnace Dealers are exercising foresight and good judgment, by taking steps to secure the *exclusive* PREMIER Franchise. For this valuable Franchise provides the dealer's best assurance of a successful tomorrow.

Here at PREMIER, the plans are being completed for the most complete, most effectual program of dealer cooperation we have ever offered. There'll be new selling aids, new advertising helps, greater assistance in engineering jobs.

Most important, PREMIER is preparing the finest, most complete line of heating and air conditioning equipment that we've ever had – a line that will provide everything needed for the complete job!

It will pay you to find out NOW whether you can secure the exclusive PREMIER Franchise. Write us today!

PREMIER FURNACE CO.
Dowagiac, Michigan

Also:
COOLING EQUIPMENT
REGISTERS
DUCTWORK
AUTOMATIC CONTROLS

PREMIER

The Year 'Round Line

New Literature

For your convenience in obtaining copies of New Literature use the coupon on page 108.

311—Postwar Planning File

Viking Air Conditioning Corp., 5600 Walworth Avenue, Cleveland 2, is offering helpful literature as a part of its wartime advertising and promotional program. A Postwar Planning File includes a check list of things dealers can do now to prepare to sell blowers and fans in the postwar period. Other materials in the file are data sheets, past and present product literature, and a priority bulletin analyzing the current priority situation.

FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.
Chicago, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

71	72	73	74	75			
299	300	301	302	303	304	305	306
307	308	309	310	311			

Name .....
Company .....
Address .....

Are you Manufacturer——Jobber——Dealer——

Statement of the Ownership, Management, Circulation, Etc., Required by the Acts of Congress of August 24, 1912, and March 3, 1933

Of American Artisan, published monthly at Chicago, Ill., for Oct 1, 1944.

State of Illinois, County of Cook—ss.

Before me, a notary public in and for the state and county aforesaid, personally appeared F. P. Keeney, who, having been duly sworn according to law, deposes and says that he is the publisher of the American Artisan, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—F. P. Keeney, Chicago, Illinois.
Editor—J. D. Wilder, Chicago, Illinois.
Managing Editor—J. D. Wilder, Chicago, Illinois.
Business Manager—Chas. E. Price, Chicago, Illinois.

2. That the owner (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given):

Keeney Publishing Company, 6 North Michigan Avenue, Chicago 2, Illinois.

Stockholders: F. P. Keeney, Chicago, Illinois; W. J. Osborn, Fairfield, Conn.; R. Payne Wettstein, Chicago, Illinois; Chas. E. Price, Chicago, Illinois; Robert A. Jack, Cleveland Heights, Ohio.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are (if there are none, so state):

None.

4. That the two paragraphs, next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is: (This information is required from daily publications only.)

F. P. KEENEY, Publisher.

Sworn to and subscribed before me this 18th day of September, 1944.
GRACE E. WAYMIRE.
(My commission expires February 10, 1946.)

FRONT RANK Furnaces

Arc Welded

for Greater Strength and Dependability!

FRONT RANK Furnaces Have the Features!

HEATING FRONT RANK SYSTEMS
TRADE NAME REGISTERED

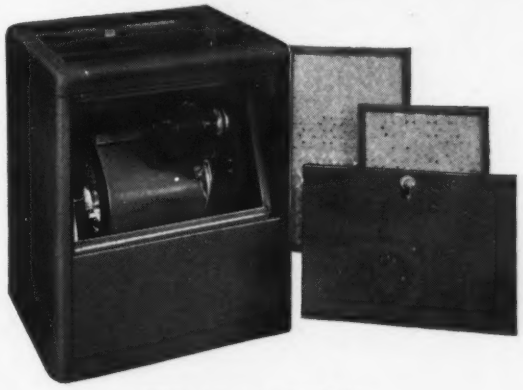
YES, Front Rank Furnaces are made of boiler plate steel, of all shielded arc-welded construction.

This arc-welded construction makes for maximum strength and dependability. It produces in FRONT RANK a furnace that is resistant to physical stresses, corrosive action, extreme heats, etc. A furnace with a completely gas-tight combustion chamber and radiator. A furnace which will give efficient, economical service for years and years and YEARS!

DEALERS — FRONT RANK has the features that mean Sales and Profits for YOU. And it has the facilities to capably serve you NOW. *Order from your Jobber.*

FRONT RANK FURNACE CO.
DIVISION OF LIBERTY FOUNDRY CO.
2500 OHIO AVE., ST. LOUIS 4, MO.

You'll have an **UNPRECEDENTED PROFIT OPPORTUNITY IN LAU BLOWER-FILTER PACKAGE UNITS**



Widest Range Available
Greatest Selectivity of Air Delivery
Knock-down Construction of Larger Units— Quickly, Easily Assembled
Small Sizes Shipped Assembled
Manufactured to Exacting Specifications
Certified Performance in Accordance to Test Codes of A.S.H. & V. E. and N.A.F.M.
Numerous Outstanding Lau Features
Proved Most Efficient in Thousands of Installations Throughout the World
Mass Production
Priced Right for Your Customers— and for You!

Get the complete story on Lau Blower Package Units.

Write us direct or contact your nearest jobber for prices and Circular No. 60 containing full description, specifications.

THE LAU BLOWER COMPANY
DAYTON 7, OHIO
WORLD'S LARGEST MANUFACTURERS OF FURNACE BLOWERS

Engineers and fabricators of general Air Handling Equipment
Single Inlet and Double Inlet Blowers • Propeller Fans • Accessories

On Our Industry's Front

(*Continued from page* 49)

cover 28 products for which the use of this additional material requires no changes in limitation orders, in approved Division Requirements Committee decisions or program determinations. The allotments will bring production of each of these items up to the level of minimum essential requirements in the absence of rationing. Products of interest to our industry are: metal plastering bases, scullery sinks, shower stalls, gas heaters, gas floor furnaces, heat generation and distribution controls.

(2) 19,428 tons of carbon steel for minor increases in programs for the use of which changes will be required either in limitation orders, in Division Requirements Committee decisions or in program determinations. Products of interest to our industry are: coal fired water heaters, electric space heaters and oil floor furnaces.

(3) 30,000 tons of carbon steel to be put in a special reserve for certain so-called major programs. Products we use are: warm air distribution equipment, gutters, downspouts and other rain goods, and warm air furnaces.

The over-all allotment of 278,203 tons for the fourth quarter does not represent the total amount of steel used in civilian production. Many regular civilian production programs are conducted on behalf of OCR by the office of the operations vice chairman, which acts as a claimant in behalf of the various industry divisions, and by other claimant agencies.

In addition, 200,000 tons of steel has been made available for the "spot authorization" program under which preference will be given to manufacturers intending to produce items on OCR's list of essential products.

Viking Promotes Gibbons

Frank P. Gibbons

Frank P. Gibbons has been appointed Sales Manager for the **Viking Air Conditioning Corporation,** 5600 Walworth Ave., Cleveland, Ohio, according to an announcement by Marion I. Levy, President of the organization.

Mr. Gibbons has been connected with Viking since 1935. Recently he has been Purchasing Agent and Assistant Sales Manager for Viking.

Amendments Interpretations

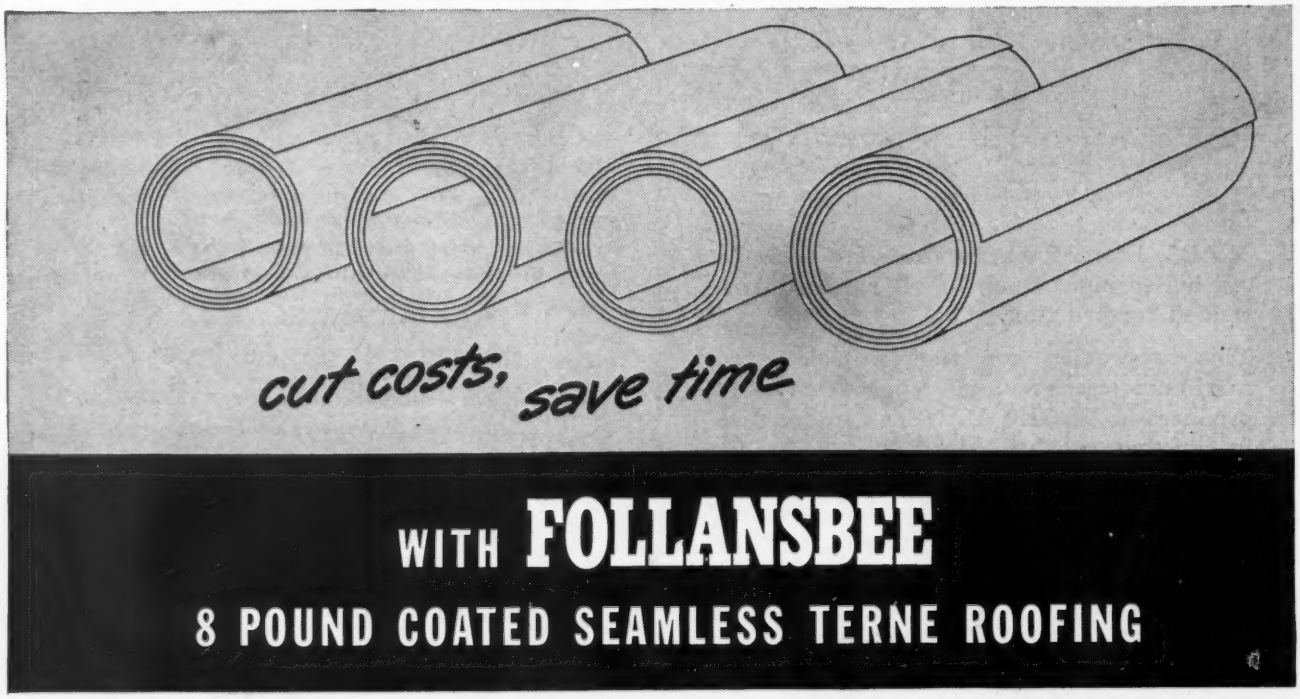
(*Continued from page* 54)

conform to minimum construction requirements of the FHA.

Any materials that can be obtained without a priority rating may be used.

Among other relaxations were the removal of:

1. The limitation on the number of electrical outlets.
2. Restrictions on the size of hot water storage tanks.
3. The requirement that bathrooms and kitchens be back-to-back.



WITH **FOLLANSBEE**

8 POUND COATED SEAMLESS TERNE ROOFING

This modern roofing terne is made in 50 foot rolls without cross seams. It speeds up the job because it is easy to handle and install . . . and in addition to savings in labor, less solder is required. Widths, 14″, 20″, 24″ and 28″. Furnished unpainted, painted one side only, or painted both sides. Ask your jobber for prices and details.

FOLLANSBEE STEEL CORPORATION
GENERAL OFFICES • PITTSBURGH 30, PA.

Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee.
Sales Agents—Chicago, Indianapolis, St. Louis, Nashville, Los Angeles, San Francisco, Seattle, Toronto, and Montreal Can.
Plants—Follansbee, W. Va. and Toronto, O.

ALLOY BLOOMS & BILLETS, SHEETS & STRIP • COLD ROLLED CARBON SHEETS & STRIP • POLISHED BLUE SHEETS • ELECTRICAL SHEETS & STRIP SEAMLESS TERNE ROLL ROOFING

MAUREY V-PULLEYS

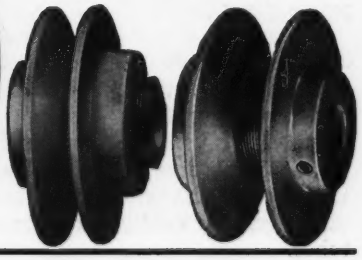
provide a L-O-N-G step toward TROUBLE FREE Performance

Our long experience in designing and manufacturing V-Pulleys, our complete understanding of their uses, and the finest materials—all are combined in making Maurey V-Pulleys the very best Pulley installations for Refrigeration and Air Conditioning systems as well as for Fans and Blowers.

For unfailing, continuous operation be sure to specify Maurey V-Pulleys.

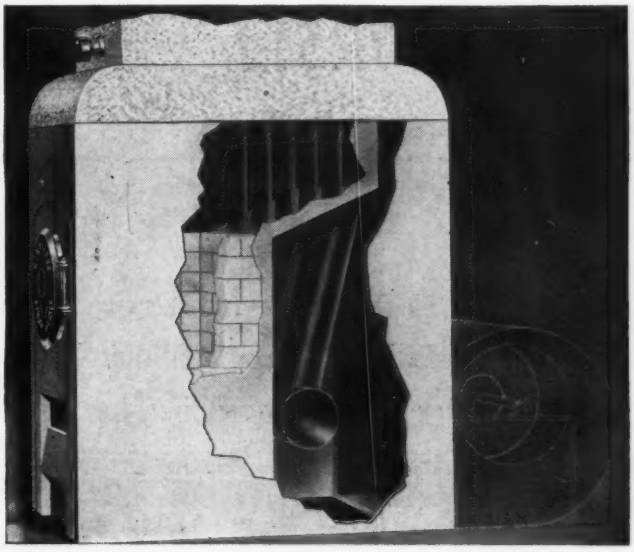
MAUREY MANUFACTURING CORP.

2915 South Wabash Avenue
CHICAGO 16, ILLINOIS



Now available!

BERTOSSA POWER HEATERS IN LIMITED QUANTITIES TO QUALIFIED DEALERS....



Bertossa heating units for the past 2½ years have been supplying heat and air conditioning to navy bases, army camps and war plants.

But government requirements today have largely been filled. A limited supply of Bertossa Heating units are now available on priority to accredited dealers.

Leading engineers and architects have long appreciated the efficiency of Bertossa heating units. Built in a wide range of sizes from 150,000 to 2,800,000 B.T.U.'s, Bertossa units have an unusually compact arrangement of blower and heating unit. They have a unique type of down draft flue. They have 90% direct heating surface, and they can be easily adapted to complete air conditioning.

Your territory may be open—write us today.

BERTOSSA

Manufactured by JACKSON & CHURCH CO.
SAGINAW, MICHIGAN

ALWAYS
TRY
NORTHWESTERN
FIRST!

FOR the best possible service under today's irregular conditions *always try Northwestern first* for the finest repair parts money can buy!

Northwestern service is kept at the highest possible levels in spite of shortages on materials and manpower.

We will always give your order the speediest attention and you can always be sure that when you order from Northwestern you'll get the best in quality repair parts in the quickest possible time!

Northwestern
Stove Repair Co.
662 W. Roosevelt Road Chicago 7, Illinois

Retained are general provisions requiring conservation of lumber and other materials.

The modifications apply only to war time housing construction, limited to accommodations for essential war workers, to relieve congestion in war production areas, and to relieve cases of individual hardship or for returning veterans unable to find other suitable quarters.

The relaxations did not rescind L-41, the over-all WPB order regulating the use of critical materials in housing construction. Also unaffected were present ceilings on construction cost, $6,000 for a new house except in areas having high construction costs where the limit is $7,500.

WPB and the Office of Price Administration are considering builders' requests for increases in the price limits, and some action is expected soon.

◆

105 mm. Shell Containers

Continued from page 78)

The final packing operations were handled by an all-girl crew with the help of men laborers to lift the heavy parts. The painted container was put into a final fixture which checked for length and the cap fit the same time. Another girl placed the testing stamps on the container. Another put a cardboard ring around the top, and another put a cardboard ring around the bottom. This is to protect the paint in shipping. Other girls cut the cardboard rings from stock and still others glued the strips into the proper rings (Photo 21).

Photo 21—Shipping department (all girls) where shipping bands and inspection stamps are put on complete cylinders.

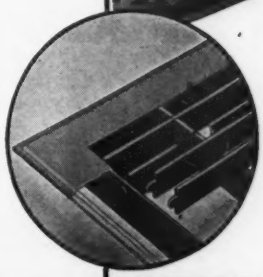
By the time this article appears this contract will have been completed. During its life, more than 1,000 tons of steel were made into containers by this one prime contractor.

More than a score of manufacturers were awarded contracts to make these or similar shipping containers for shells of various sizes. Before starting manufacture, many contract holders visited the C. A. Olsen Mfg. Co., Elyria, or The Henry Furnace Co., Medina plants to observe the equipment and methods which these companies were using, and particularly to study the automatic welding procedure for making their own tubes.

INDEPENDENT "Fabrikated" REG. U. S. PAT. OFF.

REGISTERS AND COLD AIR FACES

We are continuing to supply Independent Registers and Grilles for military needs, also for maintenance and repair when orders are properly rated and certified. For other purposes we can often fill a requirement from stock either as specified or with an alternate approved by our customer. We welcome your inquiries.



THE INDEPENDENT REGISTER CO.
3747 E. 93d St., Cleveland, Ohio

'Better look into this ZONE-CONDITIONING'

An outstanding post-war sales opportunity! This is evidenced by the hundreds of inquiries resulting from our advertising in 30 magazines. Countless families plan to build or remodel . . . and they'll want *modern* heating and ventilating.

NEW BOOKLET BEING PRINTED

Supplementing original preliminary folder, we're now publishing a more complete booklet, of interest to both "trade" and public. Write for a free copy today.

COPYRIGHT 1944—PAYNE FURNACE & SUPPLY CO., INC.

Payne ZONE-CONDITIONING

New-day successor to old-fashioned central heating. Gas-fired, circulated warmth . . . cooling summer ventilation . . . *controlled by zones or rooms.* Flexible comfort for large or small homes.

Payne

FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA

ARMY-NAVY "E"

PAYNEHEAT

30 YEARS OF LEADERSHIP

GAS FUEL (HAS) EVERYTHING

Quiet

RANDALL PILLOW BLOCKS

Engineered for Trouble-Free Service

You can rely on Randalls for quiet, trouble-free bearing service. They're easy to install, self-aligning and self-lubricating, require only minimum attention in the field and will last for the life of the equipment on which they are installed.

They'll save you money because not only are they low in first cost but they give long years of dependable operation.

Write now for catalog No. 42, showing efficient Randall Pillow Blocks for every air-handling need.

RANDALL GRAPHITE PRODUCTS CORPORATION

Department 1111 609 W. Lake St. Chicago 6, Ill.

Open Basement Return Air Plenum

(*Continued from page* 62)

deg., the stoker would start to maintain the 90 deg. bonnet temperature.

"We had expected that the addition of this other thermostat would add somewhat to the fuel requirements of the building, but found to our surprise less fuel was required with this arrangement, apparently because of less loss by radiation through the side walls and ceilings because of higher ceiling temperature which had existed previous to this installation."

◆

Kruckman— Washington Letter

(*Continued from page* 51)

duction schedules. Maverick himself says, "The distinguishing feature of 'programmed' non-war production is the issuance by the War Production Board to individual producers of a production schedule (in dollars and cents or units) together with an allotment of materials for the production of a given product, e.g., electric flat-irons." It includes all programs and allocations issued by OCR, which is a subordinate part of WPB.

The 300,000 tons steel placed in the civilian reserve have largely been specifically allocated by OCR and other parts of WPB for the production of domestic vacuum cleaners, musical instruments, household furniture, refrigeration and air conditioning equip-

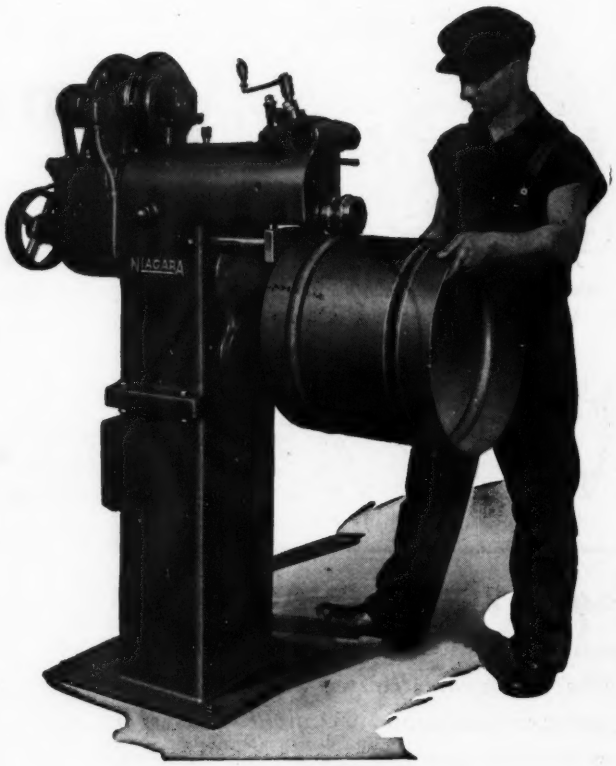
This motor driven combination machine with interchangeable rolls combines power operation, ability to handle heavy gage work, and easy operation.

Foot control of clutch and upper roll allows the use of both hands for holding and guiding the work.

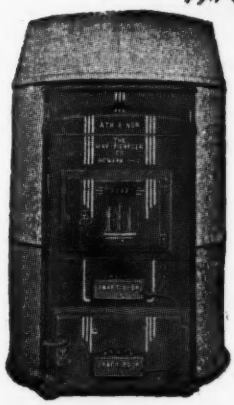
Interchangeable rolls make one machine capable of burring, turning, wiring, beading, crimping, flanging, slitting and circle cutting. Beading and crimping can be done in one operation.

Gears and shafts are enclosed. Gear box contains intermediate gears and clutch, all running in oil. Clutch gives instant hand and foot control and can be locked for continuous operation.

Write for Bulletin 75A. NIAGARA MACHINE & TOOL WORKS, Buffalo, N. Y. District Offices: Detroit, Cleveland, New York.



ATH-A-NOR
Furnace Repair Parts



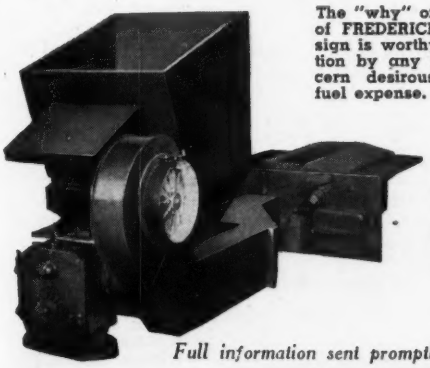
The furnace choice of dealers who know performance and saleability has been Ath-A-Nor for more than 50 years. Quality, economy and efficiency have always distinguished the Ath-A-Nor line. Replace with Ath-A-Nor to insure maximum performance and fuel economy! And continue to pile up scrap for munitions and see that it reaches government agencies speedily!

MAY-FIEBEGER COMPANY
MANUFACTURERS OF QUALITY HEATING EQUIPMENT FOR OVER 50 YEARS
NEWARK, OHIO

How To Save Coal

Simple as it may seem, the answer is to use a Stoker specifically designed to give maximum combustion efficiency at the lowest possible combustion rate per square foot of grate area.

In designing FREDERICK STOKERS, our engineers worked to avoid faults; from data obtained by trial and extensive investigation. They engineered the FREDERICK to operate efficiently; to obtain maximum heat units from every pound of coal consumed.



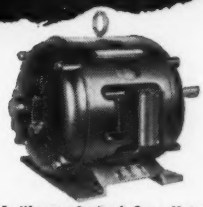
The "why" of every feature of FREDERICK STOKER design is worthy of consideration by any industrial concern desirous of reducing fuel expense.

Hopper and Bin Feed Models. 200 to 850 lb. per hour.

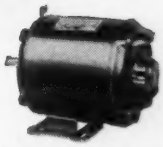
Full information sent promptly on request.

THE Frederick IRON & STEEL CO.
Frederick, Maryland

Tomorrow's HEATING, VENTILATING, and AIR CONDITIONING EQUIPMENT WILL DEMAND *Dependable Motors*



1. Wagner Squirrel-Cage Motors are used on blowers, fans, compressors, pumps, etc.



3. Wagner Single-Phase Motors. Ideal for driving condensing units, pumps, blowers, and stokers.

2. Wagner Split-Phase Motors are applied to unit-heaters, oil-burners, fans and blowers, and many other types of equipment.

4. Wagner Shaded-Pole Motors. For shaft-mounted propeller and centrifugal-fans requiring very small horsepower and low starting-torque.

Wagner

M 44-22

MOTORS
Assure Dependable Service!

In addition to manufacturing a wide variety of motors with a reputation for trouble-free, dependable performance, Wagner maintains branch offices in the following principal cities in order to assure motor purchasers and users immediate attention:

Atlanta, Boston, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, New York, Omaha, Philadelphia, Pittsburgh, Portland, Salt Lake City, San Francisco, Seattle, St. Louis, Syracuse, Tulsa, Washington, D. C.

Each of these offices is manned by trained field engineers who are ready to help you solve your motor-drive problems.

MOTORS are but one of several WAGNER PRODUCTS serving industry.
Other WAGNER PRODUCTS:
AIR BRAKES
BRAKE LINING
HYDRAULIC BRAKES
INDUSTRIAL BRAKES
INDUSTRIAL BRAKE CONTROLS
TACHOGRAPH (Recording Speedometer)
TRANSFORMERS

Send for Literature

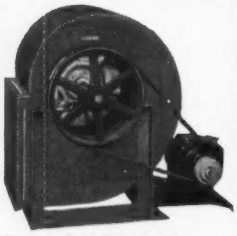
You should have Bulletins MU-182 (Polyphase Motors) and MU-183 (Single-phase Motors). Besides these two bulletins you should have Service Bulletins MU-7, MU-26, and MU-30.

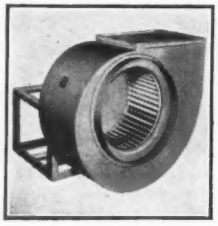
Wagner Electric Corporation
ESTABLISHED 1891
6371 Plymouth Avenue, St. Louis 14, Mo., U. S. A.
ELECTRICAL AND AUTOMOTIVE PRODUCTS

YOUR BLOWER Requirements

AVAILABLE AT

Schwitzer-Cummins Company

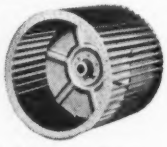




★ **BLOWERS FOR EVERY PURPOSE**

Double Inlet and Single Inlet

HY-DUTY Blowers, 9¾″ to 25″ • Top and Bottom Horizontal, and Top and Bottom Vertical Discharge • Top and Bottom Motor Mounting • Dual Units also available.



★ **CENTER DISC WHEEL**—Double Inlet, Double Width • Reinforced Center Disc • Designed for Modern Air Conditioning and Heating Applications • Sizes, 4½″ to 50″.

★ **ENGINEERING DATA**—Write for Catalogues showing complete Performance Data • Experienced Engineering Department available to help solve your Air Handling Problems.

BLOWER DIVISION
SCHWITZER-CUMMINS COMPANY
1145 EAST 22ND STREET INDIANAPOLIS, U. S. A.

Simplex Automatic Draft Controls

For Greatest Fuel Economy

NEW RUST PROOF

5 *in* 1

"SIM-TROL"

The SIM-TROL control with Simplex adjustable sleeve is adjustable to breechings (or smoke flues) from 8" to 12" inclusive, which covers the range of most domestic heating plants. Will save up to 25% in fuel; maintains draft at 1/100 of an inch of the desired point under all conditions.

Type "A" Industrial Control

References, as to efficient operation and economies effected by Simplex Controls on plants of various sizes up to 1,800 H.P. can be furnished. In many cases savings of over 25% have been made.

Most complete line of Barometric Controls for every size heating plant. Write for full descriptive circulars.

SIMPLEX
MANUFACTURING COMPANY
FOND DU LAC, WISCONSIN

ment, washing machines, floor finishing machines, sporting goods, electric irons, etc. Under the new Law, Public 485, as interpreted by Maverick and many others in Washington, WPB will not have the authority to allocate the material solely to those plants and industries it specially selects by action of its committees or subdivisions, but must literally apportion the material available fairly and equitably among all non-war producers who are qualified, under the law, to use the material to produce commodities for civilian needs.

The core of the law as it pertains to smaller business was written in these sections:

Sec. 204 (A). "Whenever the expansion, resumption, or initiation of production for *nonwar*" (notice, nonwar, *not* essential civilian) "use is authorized, on a restricted basis, by any executive agency having control over manpower, production, or materials, the restrictions imposed shall not be such as to prevent any small plant capable and desirous of participating in such expansion, resumption, or initiation of production for nonwar use from so participating in such production."

The language is clear and sweeping. It states that any small plant shall have exactly the same rights and privileges that are allocated to any other plant for nonwar production, and specifically applies the statute to manpower as well as materials. In effect this brushes aside the limitations imposed by McNutt in the Spot Authorizations, as well as by means of the various WMC local committees, the PUCs, and by other means. Whatever regulations apply to one plant will apply to another. It is assumed by some Government lawyers that the law in some aspects supersedes the Byrnes directives as well as other directives. The directives stem from Executive Orders. The lawyers

New! Convenient!

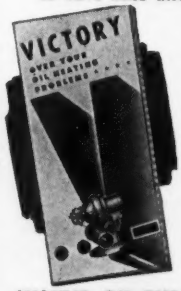
HEATING RECORD CONTAINER

For Your Customers

FREE

TO ALL OIL BURNER and FUEL OIL DEALERS

As illustrated—especially designed as a container for fuel oil ration coupons. Front has place for customer's name and ruled form for keeping a complete record of fuel oil purchases. Reverse side lists 12 points on how to save fuel and has place for dealer imprint.



A gift your customers will appreciate—and its FREE—to help you build post-war business and to get profitable service and accessory sales now. ORDER TODAY. State number desired using your business letterhead.

WAYNE VICTORY HEATING MANUALS

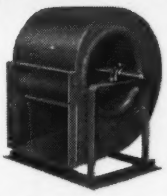
They're FREE to all Oil Burner and Fuel Oil Dealers. Order your supply of these manuals now. State number needed using your business letterhead.

WAYNE OIL BURNER CO., 9111 GLASGOW AVENUE
FT. WAYNE 4, INDIANA

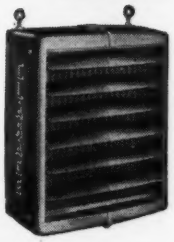
WAYNE'S V-DAY LINE WILL BE COMPLETE

"Use CLARAGE PRODUCTS and Repeat Business Comes Easy!"

This nationally known, nationally accepted fan equipment helps you land desirable jobs—helps you KEEP desirable customers. It will pay to figure with us on any air handling or conditioning project. ***Write for Clarage catalog.***



FURNACE FANS



UNIT HEATERS

EXHAUST FANS

VENTILATING FANS

COMPLETE AIR CONDITIONING • COOLING • VENTILATION • FACTORY HEATING • MECHANICAL DRAFT • FANS and BLOWERS for INDUSTRIAL NEEDS

Clarage Fan Company Kalamazoo, Mich.

APPLICATION ENGINEERING OFFICES IN ALL PRINCIPAL CITIES

WHITNEY LEVER PUNCHES

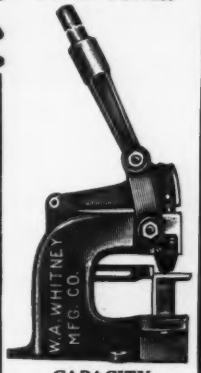
No. 4B PUNCH

Length 8½ inches. Capacity ¼-inch through 16 gauge. Deep Throat—2 inches. Weight—3 pounds. Punches and Dies—1/16" to 9/32" by 64ths.

No. 6 PUNCH

Length—26½ inches. Capacity — ¼-inch hole through 3/16-inch iron; especially adapted for button punching or templet work. Punches and dies ¼" to 9/32" by 32nds.

No. 91 PUNCH

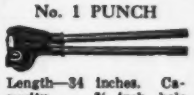


CAPACITY

½-inch hole through ¼-inch iron; ⅝-inch hole through 3/16-inch iron; 2-inch hole through ⅛-inch iron. Depth throat, 5 inches. Weight, 32 lbs.

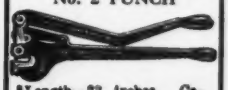
We have tools for every purpose needed by Sheet Metal Contractors. Ask your Jobber

No. 1 PUNCH



Length—34 inches. Capacity — ⅜-inch hole through ¼-inch iron. Punches and dies in sizes from ⅛ to 9/16 by 64ths.

No. 2 PUNCH



Length—23 inches. Capacity — 5/16-inch hole through ¼-inch iron. Punches and dies in sizes 3/32" to ½-inch by 64ths.

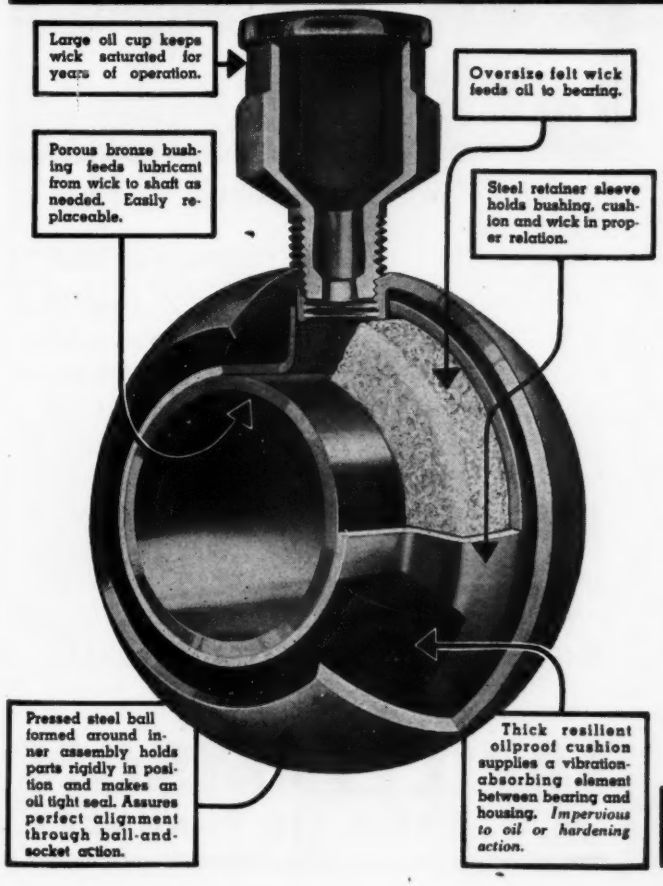
CHANNEL IRON PUNCH

Companion to No. 2 Punch. Every part of the two Punches Interchangeable, including punches and dies. Capacity—¼-inch hole through ¼-inch iron.

W. A. WHITNEY MFG. CO.

636 RACE ST. ROCKFORD ILL

No Other Bearing In Air Conditioning


Large oil cup keeps wick saturated for years of operation.
Oversize felt wick feeds oil to bearing.
Porous bronze bushing feeds lubricant from wick to shaft as needed. Easily replaceable.
Steel retainer sleeve holds bushing, cushion and wick in proper relation.
Pressed steel ball formed around inner assembly holds parts rigidly in position and makes an oil tight seal. Assures perfect alignment through ball-and-socket action.
Thick resilient oilproof cushion supplies a vibration-absorbing element between bearing and housing. Impervious to oil or hardening action.

has all these QUALITY FEATURES

In designing your after-the-war fans, blowers, and other devices requiring silent operation, perfect alignment and self-lubrication—include the Triangle Shock-Absorbing Pillow Block.

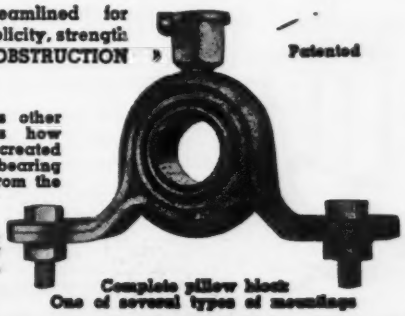
1. **It is the only bearing for air conditioning that has a resilient oil-proof cushion scientifically built into the bearing—for silence and vibration absorption.**
2. **Ball-and-socket design for perfect alignment.**
3. **Scientifically streamlined for compactness, simplicity, strength and MINIMUM OBSTRUCTION TO AIR FLOW.**

Patented

Cut-away view shows other features and illustrates how unique engineering has created a new type of silent bearing outstandingly different from the conventional.

Triangle design ensures high efficiency and low cost operation.

Write for quotations.



Complete pillow block
One of several types of mountings

TRIANGLE MANUFACTURING CO.
392 DIVISION STREET OSHKOSH, WISCONSIN

MASTER
TEMPERATURE CONTROLS

When the nation no longer needs our skill, experience and facilities for the making of important electrical items for the Navy and Air Corps, we shall be able to return with full capacity to our regular line of Master controls, along with many new and improved items that are now being planned.

I.C.I.

WHITE MANUFACTURING CO.
2368 University Ave. - St. Paul, Minn.

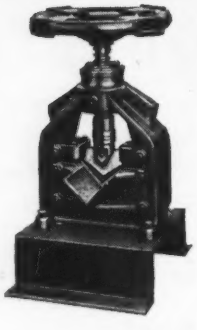
hold that a statutory requirement such as this law takes precedence over an Executive Order. There seems also a deep seated opinion that there is no emergency war power which can set aside the law.

Sec. 204 (B). "Whenever such executive agency allocates available materials for the production of any item or group of items for nonwar use, it shall make available a percentage of such materials for the exclusive use by small plants for the production of such items or group of items." (In other words, the small plant with or without war work shall have the right to produce whatever ANY plant is permitted to make.) "Such percentage shall be determined by the head of such agency after giving full consideration to the claims presented by the chairman of the board of directors of the Smaller War Plants Corporation and shall be fair and equitable.

(C) "In allocating the materials thus set aside among such small plants, such executive agency shall establish criteria, standards, quotas, schedules, or other conditioning factors after consultation with the chairman of the board of directors of the Smaller War Plants Corporation. Such executive agency shall allocate such materials directly to such small plants and shall, to the fullest extent practicable, provide for making such allocations through local offices easily accessible to such small plants. For the purposes of this title, a small plant means any small business concern engaged primarily in production or manufacturing *either employing two hundred and fifty wage earners* or less, or coming within such other categories as may be established by the head of such executive agency in consultation with the chairman of the board of directors of the Smaller War Plant Corporation. Such other categories shall be defined by taking

WHITNEY-JENSEN PRODUCTS
30 YEARS EXPERIENCE

NO. 162 SHEAR



For cutting off angle iron up to 3" x 3" x 1/4" clean and square *with no distortion of ends.* Double cut blade shears both sides. Ball Bearing Screw Action provides maximum power with minimum effort. Easily operated by one man. For bench or floor use.

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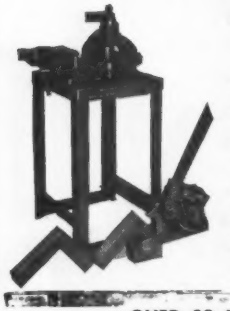


ANGLE IRON COMBINATION SHEAR-NOTCHER-BENDER

Three standard Whitney-JENSEN units are conveniently positioned on a sturdy welded steel stand—the No. 4 Angle Iron Shear, No. 50 Mitre Notcher, and No. 51 Bender—to form this No. 455 Combination. Capacity 2" x 2" x 1/4" angle iron.

OVER 80 USEFUL SHEET METAL TOOLS

WHITNEY METAL TOOL COMPANY
91 FORBES ST. • ROCKFORD ILL.

WILL WILLIE WILLIAM BILL

4 Little "Fitting" Guys Fighting For You!

Will cuts installation costs—Willie makes fittings fit—William keeps prices down to bed rock—and Bill sees that there is stock near you.

FLASH NEWS! Complete, simplified line Gravity Pipe and Fittings now available on rated orders—24 hour service and shipments.

FREE: Complete, easily understood gravity pipe and fittings catalog showing full simplified line. Write Dept. 2 for prices and catalog.

THE WILLIAMSON HEATER COMPANY
CINCINNATI 2, OHIO

WILLIAMSON
WARM AIR FURNACES

Sampsel
AUTOMATIC CONTROLS

BETTER CONTROLS
at better distributor-dealer profit
. . . . FOR LESS MONEY!

Fuel-Saving Starts With CONTROL

Sampsel builds only highest quality heating controls. Now ready in Package Units. Why not make more money for yourself—at the same time serve your customers better? Products fully guaranteed.

PROFITS *for distributors and dealers*

Right now, Controls are easy to sell. There's a big market. And Sampsel Controls give top quality at a lower price. They assure your customer of better value at No sacrifice in profit to YOU. Get details now.

★ **PACKAGE UNITS**
Complete with all accessories. Write for catalogue.

★ **ADVERTISING HELPS**
Displays, posters, folders, newspaper mats, etc. FREE.

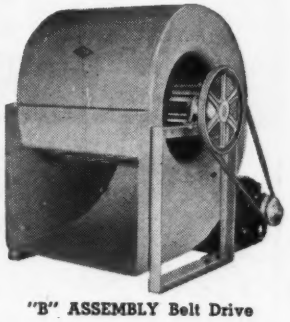
SAMPSEL TIME CONTROL, Inc.
SPRING VALLEY, ILLINOIS

We MAKE what we sell - We KNOW what we make!

Meet Today's Requirements with

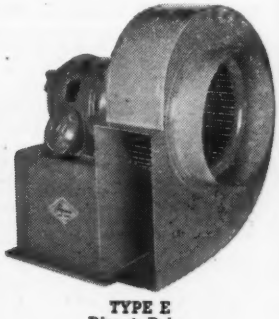
Properaire BLOWERS

Available now for prompt delivery, and easily adapted to your installation problems, you'll have excellent success with this well-rounded line of blowers.



"B" ASSEMBLY Belt Drive

SERIES 2000
Insulated Package Units



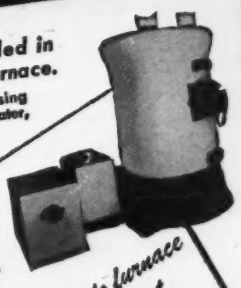
TYPE E
Direct Drive

Ask your jobber or write for "Blower File." Free.

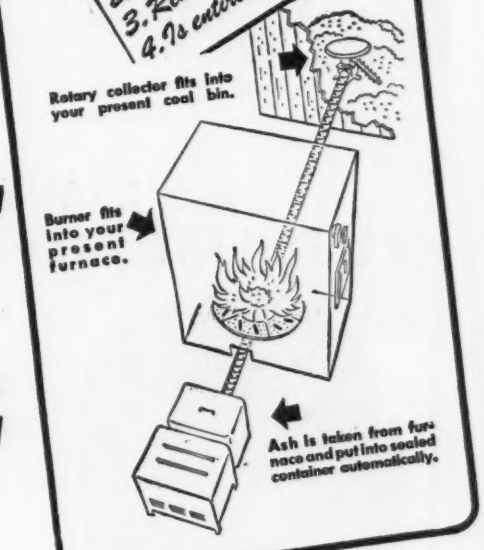
GRAND RAPIDS DIE & TOOL CO.
1202 Godfrey Ave., S. W., Grand Rapids 2, Mich.

if
YOU WANT TO SELL
WHAT THE PUBLIC WANTS
This is the Stoker!

Quickly installed in your present furnace.
In any furnace using warm air, hot water, steam or vapor.



The Stoker That
1. Feeds coal to furnace
2. Controls the heat
3. Removes the ashes
4. Is entirely automatic


Rotary collector fits into your present coal bin.
Burner fits into your present furnace.
Ash is taken from furnace and put into sealed container automatically.

FEEDS ITS OWN COAL!

EMPTIES ITS OWN ASH!

Made by the World's largest producer of smokeless Coal!

THE word is GO! No longer are priorities required on industrial stokers and with domestic stokers released, a clamoring public wants to buy the product of tomorrow today! If you are the kind of dealer who is looking for a stoker line which has pioneered bituminous ash removal stokers, is tops in engineering, has thousands of bin-feed ash removal stokers already in the field, we want to hear from you. There is still plenty of good territory available.

WRITE TODAY!

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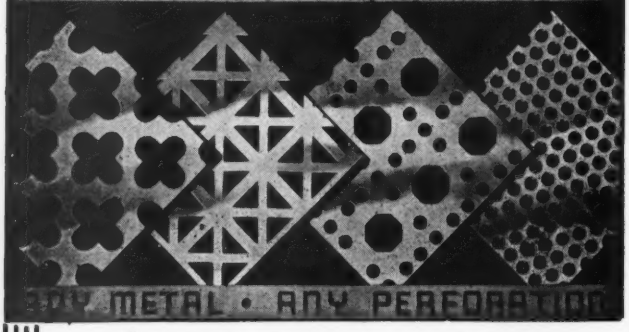
BIN-FEED ASH REMOVAL STOKERS

PERFORATED METALS
Industrial and Ornamental



ANY METAL • ANY PERFORATION

Industrial Perforations include all sizes of round, oblong, and many special shaped perforations, for Screening, Grading, Draining and Guarding purposes. Our line is very complete.

Ornamental Perforations are used in Architectural Grilles, Radiator Enclosures, Metal Furniture, Cabinets, Stoves, etc. In addition to the standard shapes we have many exclusive and attractive designs suitable for different uses.

H&K workmanship is unsurpassed.

Write for prices and other information.

The Harrington & King PERFORATING Co.

5649 Fillmore St., Chicago 44, Ill. 114 Liberty St., New York 6, N.Y.

into consideration the comparative sizes of establishments in a particular industry as reflected by sales volumes, quantities of materials consumed, capital investments, or by other criteria which are reasonably attributable to small plants rather than medium or large size plants."

The last condition applies to plants which are larger than the average smaller plant but which are themselves small in comparison with the average plant of the industry of which they are a part. For instance, one of the recent steel plants on the West slope is large in comparison to the average smaller business plants in the area in whose general category it belongs, but is small in comparison to the average steel plant of the nation. In fixing 250 or less workers as the yardstick for smaller business, SWPC based its formula upon the fact that it had found practically all war contracts are held by plants with more than 250 employees. Those making the law therefore concluded the benefits of any legislation for smaller business rightfully belongs to those industries whose units virtually had not been able to participate in war production, and therefore not being in war business, would not interfere with the war effort by reason of any benefits they would derive from these exemptions.

When the law was enacted the clauses applying to smaller business were generally regarded as pleasant applesauce. It was not anticipated anyone would attempt to enforce it. When WPB and WMC awoke tc the fact that SWPC seriously purposed to use the new law, there was widespread consternation. Almost ever since the President signed it and made the law effective by appointing Justice Byrnes as the director ad interim, there have been interminable conferences to reach a compromise. The law particularly jolted WMC. McNutt pointed out it would virtually disrupt

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MULTIBLADE EXHAUSTERS

Forward Curved Blades

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Surprisingly Quick Deliveries

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IT SAWS! IT FILES!

A PORTABLE POWER-SAW AND FILE

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MULTI-PURPOSE TOOL
SAVES TIME — SAVES MONEY

★ The Saw-Chief attaches to electric and air drills, or may be driven by flexible shaft. Hack-saw blade in holder reciprocates rapidly with a 7/8" stroke. Cuts all metals—every gauge, wood, plastics, other materials. Eliminates slow, tiresome hand-sawing operations. Reaches into hard-to-get-at places with ease. Insert ordinary machine file for power-filing operations. It's portable . . . carry it from job to job.

QUICK DELIVERIES ON AA-5 PRIORITY OR BETTER
The Saw-Chief can be shipped quickly, ready for attaching to your drill or flexible shaft at only $45.00. May also be obtained complete with heavy duty drill at $90.00, or with high-powered, lightweight drill at $83.00.

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SAW-CHIEFS are guaranteed to give complete satisfaction. Your money refunded if the SAW-CHIEF does not save hours of labor on countless operations.

Phone your jobber for demonstration today or write us direct!

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For Better Heating

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SHEET METAL MEN should know more about this machine

KALAMAZOO
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SAVES EVERY DAY in your SHOP

Why let high priced labor cut by hand—lengths of angle iron—rods—tubes—bars, etc.—when this low priced machine does these jobs with amazing Speed and Accuracy? Pays for itself in Labor Saving and Steps up Production. Scores of shops say "just what we've always wanted."

Write for bulletin.

MACHINE TOOL DIVISION

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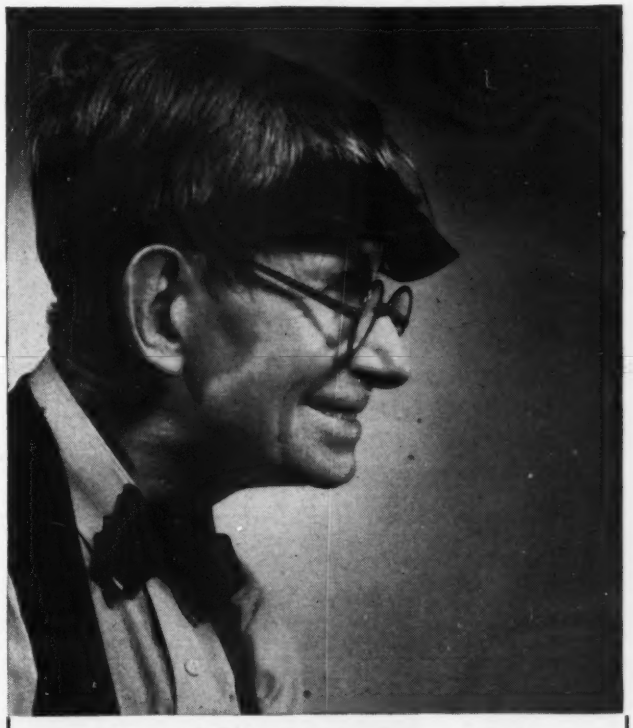

OH, BROTHER! WHAT A MACHINE FOR POST-WAR JOBS, TOO!

Yes, Sir-ee-ee! Lockformer is not only turning out Pittsburgh and other Roll Locks, like magic—but think of the money it's going to make for us on those peacetime jobs, too!

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Perfected GAS-HEATING *for* SMALL HOMES

A. G. A. approved.

Palmer FLOOR FURNACES

Efficient, quiet, long-lasting furnace with a heavy gauge pressed steel heating element. Thermostatically controlled without wiring. The insulated inner casing assures faster air circulation. The ideal ductless gas furnace heat for small homes, at a price your customers are willing to pay! Consult your gas company regarding priorities. Write for specification sheet, prices.

PALMER MFG. CORP., PHOENIX, ARIZONA

SHEARS

CIRCLES! CURVES! ODD SHAPES!

Whichever you want, a straight cut or irregular curve —it's as easy on the inside as the outside, on either flat sheets or formed work. No starting holes needed for an inside cut. A Libert is easy to operate—foot pedal control allows use of both hands to guide work at all times. It shears cleanly! Edges are *smooth;* need no further finishing. *Write for Bulletin.*

Made in sizes up to 60-in. throat, 10-gauge capacity

2-Q-43

CIRCLE CUTTING ATTACHMENT Included as Standard Equipment With This Machine

MODEL 1236 36-In. Throat 12-Gauge Capacity

Libert Hi-Speed SHEAR

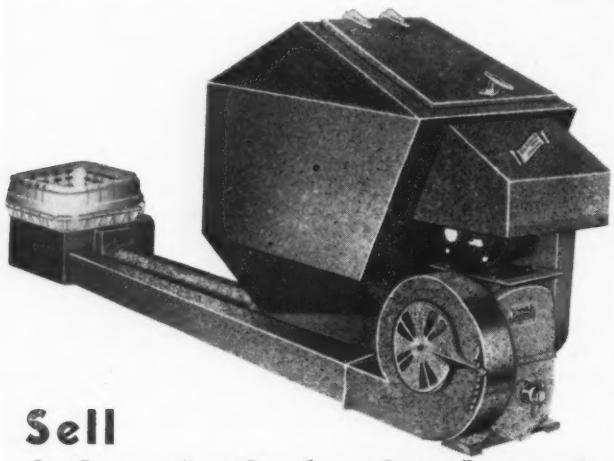
LIBERT MACHINE COMPANY

GREEN BAY, WISCONSIN

manpower controls. He suggested that a new definition be formulated, making 50 or less employees the yardstick of the smaller company which might reconvert without reference to WMC. The suggestion was declined by SWPC. The present policy of WMC is to ignore the law, to proceed as if Congress had never placed it on the statute books.

As the law was written, enacted, and approved by the President, the Office of War Mobilization and Reconversion must enforce the provisions which give smaller business special exemptions from the restrictions that may limit any program to expand civilian production. In effect, the law, as it now exists, takes restraints from small plants which are prepared to start civilian production. Government lawyers here say that those who feel they have not had the full exercise of their rights when they went before the PUCs or other Committees processing Spot Authorization applications, may now be advised by their lawyers to appeal to higher authorities for new rulings, and if they do not obtain satisfactory results, they may quite logically take their cause to the courts. The general idea seems to be that eventually the exact limits of the new law may be defined by the Supreme Court in a proceeding such as that which involved the NRA in the famous Schechter chicken case, the suit which originated in Brooklyn and ended NRA.

Section 205 reads: "The Attorney General is directed to make surveys for the purpose of determining any factors which may tend to eliminate competition, create or strengthen monopolies, injure small business, or otherwise promote undue concentration of economic power in the course of war mobilization and during the period of transition from war to peace and thereafter. The Attorney General shall submit to the



Sell Schwab Safe Stokers!

To be *safe* on profit, efficiency and economy, sell Schwab *Safe* Stokers . . . engineered and built to give the longest years of trouble-free service . . . backed by 70 years of manufacturing experience. There's a Schwab Safe Stoker for every domestic, commercial and industrial need.

Write today for full details on the fine Schwab Safe Stoker dealership!

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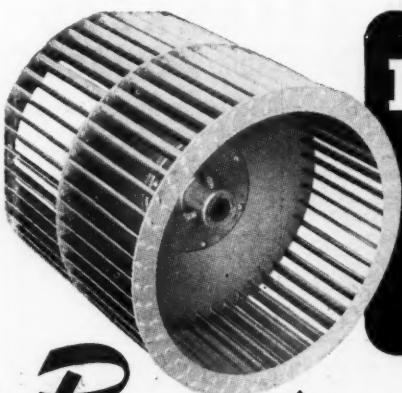

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Brundage

DUO-MULTIBLADE WHEEL

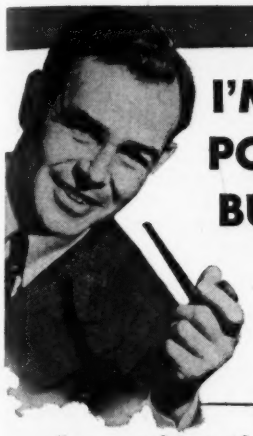
ANOTHER FEATURE OF OUTSTANDING QUALITY THAT IS PART OF EVERY BLOWER-FILTER PACKAGE UNIT BUILT BY BRUNDAGE . . . .

Here is a wheel statically and dynamically balanced, capable of delivering air efficiently and smoothly against high resistance. Staggered half-blades are firmly supported by center disc and outer rims assuring quietness of operation.

THE Brundage COMPANY

Brundage makes a complete line of Blower — Filter Package units and Assemblies. Write your jobber or furnace manufacturer.

BLOWER SPECIALISTS
for twenty-seven years
KALAMAZOO 11, MICHIGAN



I'M BUILDING MY POSTWAR STOKER BUSINESS TODAY!

A lot of smart dealers are doing just that—selling the unrestricted models to office buildings, hospitals, schools, churches, hotels, using 25 tons or more of coal per season ... and at the same time storing up ideas and prospects for tomorrow when smaller models will be released.

It's a fine time to start, and you will be off to a *good* start with

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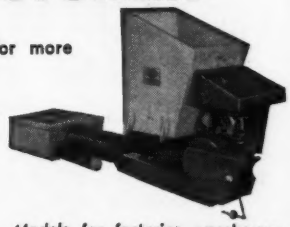

- Engineered to do a better job for more years by a 77-year-old company.
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- All-cast chassis that resists rust and corrosion.
- Barometric, automatic control of chimney draft, and many other advantages that make sales and satisfied customers.

Models for factories, warehouses, public buildings, office buildings, apartment buildings, schools and churches.

WRITE TODAY for literature and dealer plan. Be ready for the big postwar demand.

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A GEHL WINS FRIENDS WHEREVER IT GOES

BAROMETRIC DRAFT CONTROLS

C.S.E. Draft Controls are *urgently needed* this winter. They provide *closer control, substantial provable* fuel savings—10% to 25%,—are fully automatic, easily installed, need no servicing. Fuel conservation has become a national crusade—make it an *accomplished fact* in your community, at a profit, with a GOODWILL BONUS.

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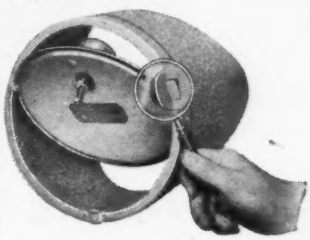

Type "F," for stoker and oil-burning installations, *with new, simplified outside draft adjustment, rust-proof, positive locking.* Equipped with universal sleeve to fit all standard domestic pipe sizes from 7" through 12". Holds draft to the "ideal minimum" for clean, efficient combustion.

C.S.E. manufactures a complete line of draft controls for every size and type of heating and power plant—from the smallest domestic to the largest industrial installations. Write for complete information.

Fuel-Saving Starts With CONTROL

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One of your Big Opportunities

in helping building owners with their reconversion plans is ***Ventilation***

Swartwout Roof Ventilators

give you the equipment you'll need for all types of roof openings, including latest successful development inspired by war production.... Get yourself in line for your share of this business—write THE SWARTWOUT CO., 18511 Euclid Ave., Cleveland 12, Ohio

Swartwout VENTILATION SPECIALISTS

Line Chimneys FOR PROFIT WITH VITROLINER

-the Superior Vent Pipe

ATTENTION CONTRACTORS:

Make a profitable business of installing Vitroliner Vent Pipe in old or new masonry chimneys for long life and PROTECTION from acid bearing flue gases. Ideal for gas or oil-fired jobs where CONDENSATION is an important problem.

VITROLINER CHIMNEY LINER is heavy gauge, high quality enameling stock iron and is coated inside and out with special high temperature acid-resisting vitreous enamel. Bell and Spigot type joint assures a perfect and uniform fit.

Vitroliner Vent Pipe is easy to install in a few hours. Write for details to

CONDENSATION ENGINEERING CORP.

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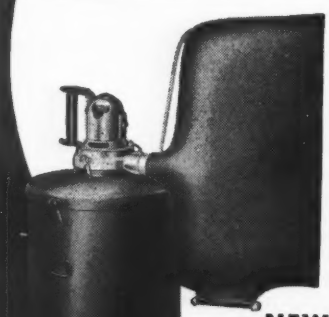
Premier FURNACE CLEANER

BUILDS UP SERVICE VOLUME!



The sturdy Premier Furnace and Boiler Cleaner works as your best ally in developing service business *in volume*—it gives you first-hand knowledge of needed repairs while it brings you profits on cleaning jobs! It's rugged and powerful, yet compact and light weight—easily carried and operated by one man. Write today for complete information.

NEW IMPROVED MODELS
Completely Equipped
½ H.P. . . $74.50
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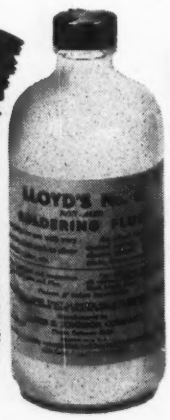
MAKES LEAD-RICH SOLDERS AND SILVER-LEAD SOLDERS WORK LIKE MAGIC!



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SOLDERING FLUID
(Non-Acid)

Here at last is a soldering fluid that gives outstanding results with all soft solders including lead-rich Victory Solders! It breaks down these solders into an absolute fluid. It is an ideal flux for Zinc-coated Sheet Metal, Tin Plate, Terne Plate, Brass, Copper and Steel. It's economical—a gal. makes 2 to 3 gal. high quality flux. Try it yourself—be convinced of its superiority. Write for literature and FREE sample today!

LLOYD S. JOHNSON COMPANY
2241 Indiana Ave. Chicago 16, Ill.
SOLDERING TECHNICIANS

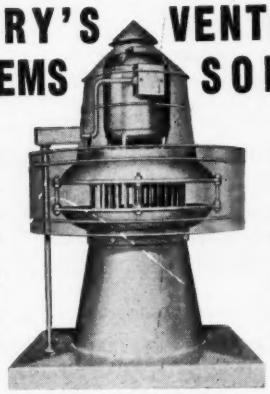
Congress within ninety days after the approval of this Act, and at such times thereafter as he deems desirable, reports setting forth the results of such surveys and including recommendations for such legislation as he may deem necessary and desirable."

The implications of the law are considered so momentous to Smaller Business that many of its champions regard the new statute as its magna charta.

The feeling here is that the general effectiveness of the law will largely depend upon the interest displayed by business, particularly smaller business, and upon the alertness with which smaller business men—and women—follow the various steps taken by officials of the Federal Government to fulfill the spirit as well as the letter of the law.

Smaller War Plants Corporation also has been given powers and duties in connection with the new Surplus Property Act. To carry out its duties it is training

INDUSTRY'S VENTILATING PROBLEMS SOLVED!



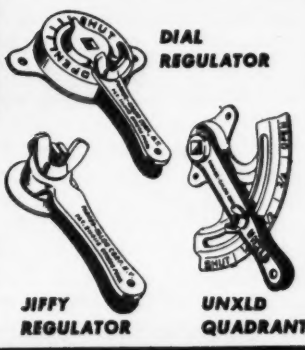
No belts to slip. Direct connected. Sets up on the roof out of the way of everything. A compact, self-contained unit easily and cheaply installed. Write for details now, Dept. 9.

THE GALLAHER CO., Owatonna, Minnesota

PENN-AIRE FURNACES
GRAVITY, CAST IRON
Popular Price
Practical Design
Economical Operation

UNION MANUFACTURING CO., INC.
BOYERTOWN, PA.

A Type And Size For Every Need



For efficiently controlling light and medium dampers in heating, ventilating and air conditioning systems, specify Parker-Kalon Damper Controls. The line includes all types and sizes, at a range of prices to fit the needs of any job. Parker-Kalon Corp., 190-192 Varick Street, New York.

PARKER-KALON damper controls

REPAIR PARTS
For all
Furnaces - Boilers - Stoves
GUARANTEED TO FIT

Although the demand for repair parts is very great, we can still give you prompt service.

To speed your order be sure to give full name and numbers and correct description of parts wanted.

A. G. BRAUER SUPPLY CO.
2100 Washington Ave. St. Louis, Mo.

REPAIRS FOR ANY FURNACE BOILER OR STOVE

REPAIR PARTS FOR ANY FURNACE, BOILER OR STOVE

Complete Line of Sundries and Supplies

FOR QUICK SHIPMENT

OMAHA STOVE REPAIR WORKS
1206-8 DOUGLAS ST., OMAHA 2, NEB.
SINCE 1882

WISS "METAL MASTER"

Compound Action
AVIATION SNIPS

Used extensively by leading aviation and metal working industries and in U. S. Government Plants throughout the country.

- Cuts circles, squares and irregular patterns on Stainless, Dural, and Monel Metals with ease.
- All Parts interchangeable.
- M1 for cutting left—M2 for cutting right.

WISS BULLDOG AND STANDARD PATTERN SNIPS are used in Shipyards, on Government construction projects, and on maintenance work wherever sheet metal is required.

Send for literature of complete line

J. WISS & SONS CO.
ESTABLISHED 1848 NEWARK 7, N. J.

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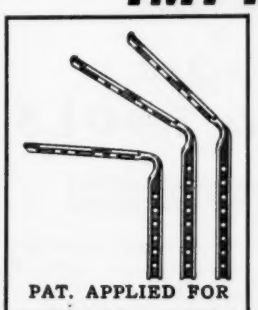

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No. 12 SHANK
33⅓% STRONGER

IMPROVEMENT IS APPLIED TO No. 15—SQUARE, No. 12—⅓ PITCH, AND No. 25—¼ PITCH.

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WHOLESALE DISTRIBUTORS
SHEET METAL FURNACES
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Are You Looking For An AGGRESSIVE DISTRIBUTOR?

We are a well-established, financially sound firm distributing a number of nationally known lines in Northeastern Ohio. We are interested in establishing new lines... for after the war ...NOW. Write for more information.

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Drill Holes Faster, Easier
with Black & Decker Electric Drills

¼" Standard Holgun **$32.50**

Models to fit any metalworking job. Capacities from ¼" to 1¼" in steel—double in hardwood. Drive twist drills, wood augers, hole saws, many attachments. Powerful Universal motors. See your Black & Decker Distributor, or write to: The Black & Decker Mfg. Co., 682 Pennsylvania Avenue., Towson 4, Maryland.

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Portable Electric TOOLS
DRILLS, HOLE SAWS, DRILL STANDS, LECTRO-SHEARS, BENCH GRINDERS, SANDERS, PORTABLE GRINDERS.

Vernois
ORIGINAL REPAIR PARTS
Insist On Them!

Vernois furnaces have proven their fine workmanship and operating efficiency during war times . . . when you repair Vernois furnaces use nothing but original Vernois repair parts. Order them direct from the manufacturer.

MT. VERNON FURNACE & MFG. CO.
MT. VERNON, ILLINOIS

SPOT WELD
WITH AN
ACME "Hot Spot" WELDER

Proven utility for over 26 years in thousands of sheet metal fabricating plants.

Write for Literature and Prices.

Complete Range of Sizes
Lifetime Guarantee!

ACME ELECTRIC WELDER CO.
2618B Fruitland Road Los Angeles, Calif.

a special staff. There are now under consideration at least four programs to aid smaller business. First, it is proposed to locate surplus property for individual purchasers. The property will be spread around the country, and the SWPC intends to locate the property for the individual business man in order to save him a nationwide search. Second, it may provide loans to enable the smaller business man to procure surplus property. Third, it may provide assistance to determine what smaller business may require that may be provided from the $40,000,000,000 stockpile of surplus property. Much of this assistance may be given by means of the SWPC engineering staff. Fourth, SWPC, under the Surplus Property Act, may purchase surplus property for resale, lease or rental to small business.

REPAIR PARTS

DES MOINES STOVE REPAIR CO. 75 YEARS OF SERVICE 1869 1944

for
STOVES—FURNACES—BOILERS
Also
MODERNAIRE FURNACES
Fittings, Registers, Supplies

DES MOINES STOVE REPAIR CO.

Sam C. Green
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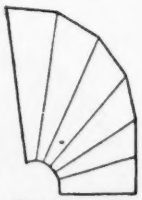
DES MOINES, IOWA
Since 1869

GRAY'S FULL SIZE BLUE PRINT PATTERNS ARE A GREAT TIME SAVER



SHIP VENTILATOR PATTERNS
From 4" to 48" dia. of base, in sets and single sizes.
ELBOW PATTERNS IN TWO SETS
SET No. 1—1" to 20" in 2-3-4-5-6-7 piece, including T PATTERNS 2" to 20"—152 Patterns.....$2.50
SET No. 2—20" to 40" in 5-6-7-8-9 piece, 105 Patterns, including elbow chart, showing what pattern and number of pieces for required angles, also gives the distance between seams in throat for any required radius up to 96". With the two sets is included a circumference chart showing every 1/8" up to 96" dia.
SETS No. 1 & No. 2 post-paid.....$5.00
45 Degree BRANCH PATTERNS IN TWO SETS
SET No. 3—2" to 12" on 2" to 30"—190 Patterns.....$5.00
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SETS No. 1-2-3-4 cover everything in blow-pipe work. Patterns sent by return mail post-paid upon receipt of P.O. order or check for $15.00.

G. L. GRAY • 507 Grand Avenue NEW HAVEN 3, CONN.
Write for pattern circular giving full information.
Mention American Artisan.

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SODERING FLUX
For Every Sheet-Metal Job!
Let Us Help You With Your Problems

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DASCO
Forged
HAND TOOLS

Chisels, punches, drills, nippers and numerous other hand tools . . . quality built for long service. Sold by leading jobbers.

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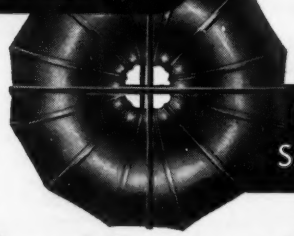
Gas Pressure REGULATORS
for Reliability!

Certified by A. G. A. Testing Laboratory. Write for Catalog and prices on Barber Conversion Burners, Appliance Burners, and Regulators.

THE BARBER GAS BURNER CO.
3702-4 Superior Avenue
CLEVELAND OHIO
Sizes 1/4" up

IMMEDIATE DELIVERY
FROM STOCK!



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USE PEERLESS

for source of supply of complete warm air heating needs. Steel furnaces, repair parts for all makes of furnaces and boilers. Fittings, registers, blowers, electric controls, etc.

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Keep FIRELINE on the truck!

These days, when all furnace men have more work than they can handle, it's just good business to use Fireline. No long waits for firepot castings when you use Fireline. It repairs any furnace job, big or small. Seals all cracks and holes . . . Salvages burned-out firepots . . . Protects and preserves good castings with its durable, heat-saving refractory lining. Quickly installed. Job-for-job, your profit is greater with Fireline. Write for bulletins, prices, and name of nearest jobber.

Also ask about IRONSET Furnace Cement

FIRELINE STOVE & FURNACE LINING CO.
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CHENEY METAL *The Modern* **SHEET METAL**

- SUPERIOR TO GALVANIZED IRON
- WEATHER PROOF
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- FORMS EASILY WITH REGULAR SHOP TOOLS

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WRITE FOR DESCRIPTIVE FOLDER AND THE NAME OF YOUR NEAREST DISTRIBUTOR

CHICAGO STEEL BRAKE

BEST BY FORTY-TWO YEARS TEST

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There's Good Profit for You in Selling MONMOUTH HUMIDIFIERS

- For all warm air systems. Descriptive Bulletins and prices on request.

Formerly made by Monmouth Products Co.
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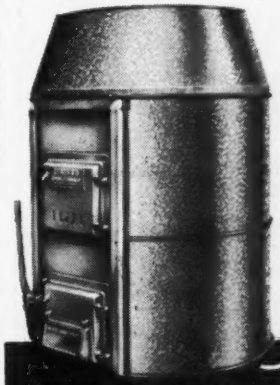
FOR BETTER HEATING . . .



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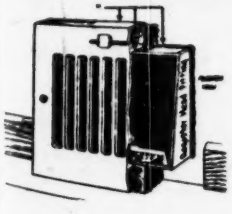
You Can Guarantee Streakless Registers



Make FRIENDS of YOUR CUSTOMERS

Get jobs at a better price against competition.

Simplify and expedite installing Register Heads at less cost, as STREEKNO takes care of any air leaks. STREEKNOTIZING is an uplift for the entire industry, you make a nice profit and eliminate an expensive nuisance for your customer at the same time. Also ties in with every cleaning job. Installed price only $2.00 per register, 5 to 10 minutes installation time per register.

Live Dealers—Write for literature and details of our profit making plan, or better order one or a few cases from YOUR Jobber today as a starter. Sales literature etc., in every shipping case of 12 register packings at $6.60.

A PRODUCT OF

EXCEL HEATING and AIR CONDITIONING CO.
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Bremil

Two Sizes

PORTABLE SHEARS

Your work will proceed faster and neater when you use Bremil Portable Shears on the job or in the shop. Write today for literature showing complete line.

ALL-ALLOY No. 2 cuts up to ¼" steel plate.
ALL-ALLOY No. 1 cuts up to No. 11 gauge strip or sheet.
Special blades may be obtained for shearing stainless steel.

BREMIL MFG. CO., ERIE, PA.

ECON-O-COL

the "Stronghearted"

STOKER

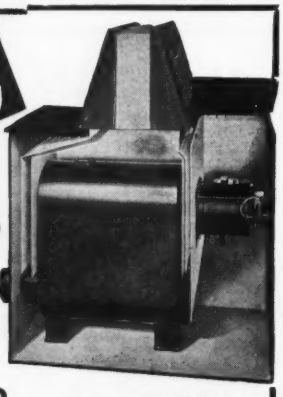
ECON-O-COL Automatic COAL BURNER

ECON-O-COL STOKER DIVISION
COTTA TRANSMISSION CORP.
ROCKFORD ILLINOIS

THE SHIELD OF QUALITY

Remember COLE HOT BLAST

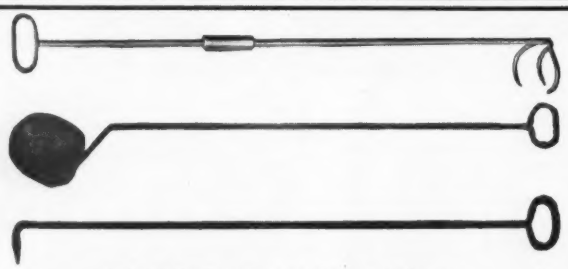
LINE OF OIL & GAS-FIRED FLOOR FURNACES



Will again be on the market as soon as its over—meanwhile we're in war work.

COLE HOT BLAST MFG. CO.
3108 W. 51st St. Chicago 32, Ill.

Our popular oil-fired Floor Furnace



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Buy Adams Known Quality

CLINKER TONGS
ASH REMOVERS
FURNACE POKERS
FIRE RAKES
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THE ADAMS COMPANY

BRIDGE STREET DUBUQUE, IOWA

PLANING MILL EXHAUSTERS

DIAGRAM shows how special streamlined inlet deflects airstream soas toreduce turbulence and back plate erosion. Result: higher over-all efficiency, lower maintenance cost, less time out for service and repairs.

SEND FOR DETAILS *including performance and dimensions in Catalog 410.*

B. F. STURTEVANT COMPANY
HYDE PARK BOSTON 36, MASS.

☆ WAR TIME

Allegheny Ludlum Steel Corporation, Brackenridge, Pa., reports that their entire output is war material.

President **H. G. Bacheller** is now vice chairman of the War Production Board in charge of steel division.

Merle Graham, plant production at the Bringham Road Plant at Dunkirk, New York, is now a lieutenant, Junior Grade, U. S. Navy.

Approximately 1,110 former employees have seen action in the service of their country.

◆

The Rudy Furnace Company, Dowagiac, Michigan, has received the Army-Navy Production Award for excellence in war production conferred upon the men and women of their company on Tuesday, October 31.

◆

Hart & Cooley Manufacturing Co., Holland, Michigan, advised on October 5 that the present address of **Lt. J. H. Van Alsburg** is:

Lt. J. H. Van Alsburg, U.S.N.R.,
Landing Craft Repair Base,
Navy 3205, Fleet Post Office,
San Francisco, California.

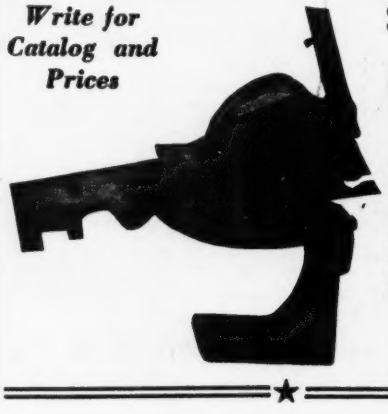
Van is at present located on a knoll in a coconut grove somewhere in the Admiralty Islands.—E. S. Johnson, Secretary.

◆

Milcor Steel Company, Milwaukee 4, Wisconsin, is engaged about 80 per cent in war orders. **The Milcor Mike for Labor Day, 1944,** describes fully Milcor's part in the war effort, with photographs showing the manufacture of the 81 mm ammunition box on the line set up last March to handle Milcor's latest contract from the War Department. The issue contains "The Ten Commandments for Victory"—Sabotage, Espionage, Fire Prevention, Waste, Health, Safety, Absence, Guards, Identification and Rumors—also a list of men and women in the armed forces. Three are listed as killed in action and three others as missing in action. The following nineteen executives and salesmen are in Government service:

John T. Barclay, CM2/c Navy, Jobber Representative.
Reginald Sykes, Lt. (J.G.) USNR, Department Manager.
Frank Bergmyer, Cadet Army Air Corp., Salesman.
Mathew G. Robertson, Major, Army Air Corp., Branch Manager.
J. E. Dublin, A/C Army Air Corp., Salesman.
A. M. Puckett, Cpl. Air Corp. Ord. Dept., Salesman.
Wm. A. Jahn, Major, QM Corp., Department Manager.
Gordon Matthews, 1st Lt., Ord. Co., Development Department.
E. J. Skrentny, Sgt., Army Air Corp., Assistant Dept. Manager.
Clark Webber, Major, Armd. Div., Salesman.
H. E. Gaskill, Capt., Postal Hdq., Branch Credit Manager.
R. E. Troller, U.S. Treasury Dept. Procurement Div., Salesman.
F. C. Raschka, U.S. Treasury Dept. Procurement Div., Salesman
H. A. Parkin, Salvage Coordinator WPB, Salesman.
J. H. Spengler, War Dept., U.S. Engrs. Salesman.
L. R. Wise Expeditor of Orders U. S. Engrs. Salesman.
F. E. Barr, Secret Government Work, Salesman.
R. F. Brown, Head Mat'ls. Estimator War Dept., Salesman.
E. L. Scofield, War Dept., Field Service Grp., Salesman.

Write for Catalog and Prices



SPEED UP ORDERS with a BEVERLY SHEAR

Throatless shears that cut any shape . . . straight, circular or irregular. FASTER—Precision — accuracy! Order No. 1 for 14 gauge. No. 2 for 10 gauge. No. 3 for 3/16 inch mild steel and 10 gauge stainless.

BEVERLY SHEAR MFG. CO.
3004 West 111th St.
CHICAGO (43), ILL.

TRADE NEWS ☆

Conco Engineering Works, Mendota, Illinois, peacetime manufacturers of a full line of automatic heating equipment for use with coal, oil and gas, has directed all production toward war material since the start of the war. The Army-Navy "E" flag waves from Conco's plants.

◆

M. H. Kliefoth, Treasurer of Research Products Corporation, was called to Washington in May and was given a special assignment and at the present time is doing Government work in the Mediterranean area.

The company reports two casualties—Ed Rigg, who was an air flight pilot, was killed in training in California shortly after the outbreak of the war; and recently, Thomas J. Knudston, an employee in the Air Filter plant, was killed in action in France.

There are now approximately 36 men in service who were formerly associates. These 36 men are located in all parts of the globe—China, Italy, Aleutian Isles, France, Australia, England, and, of course, some are still in this country. One of our young women, Miss Evelyn Woods, is in the Womens Army Corps. Miss Woods is now located in Australia.—Kemper Slidell

◆

The Trane Company, LaCrosse, Wisconsin, reports their war contracts cover all types of work in which comfort heating and air conditioning, or process heating and cooling, are needed to solve industrial or manufacturing problems. All their business carries a priority rating of AA-5 or better.

Fifty-nine former salesmen, engineers and executives are in service. The company believes more than half of their men have seen duty overseas. Some have already returned either to duty in the states or with honorable discharges. To date, their honor roll contains the names of three men killed in action and two men listed as missing.

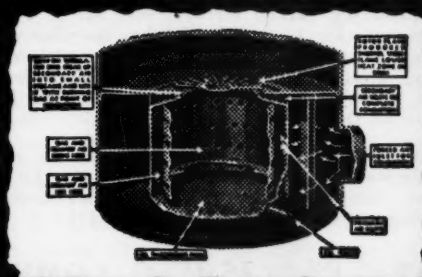
In each war bond contest, employees have surpassed their quotas by substantial percentages to rate high among other local industries in bond purchases and payroll allotments.

Trane employees have played an active part in giving generously to the Red Cross and War Fund drives. Workers have formed groups to give blood at the local blood donation center. The Trane Glee Club, composed of nearly 50 members, makes trips to entertain soldiers and hospitalized veterans at nearby Camp McCoy. Veterans and WACs from the camp have visited the plants assuring workers of their part in the war effort. Noon rallies with speakers from various campaigns in Europe and the Pacific have been held. A Trane Suggestion System makes it possible for workers to win awards for ideas which will help the war effort.—B. J. Christiansen, Trane Publications.

nous Patented *Monogram* Vaporizing Burner
ovides Highest Known Operating Efficiency with Oil

ll Forced
inter Air
nditioners

Booster
Gravity
Units

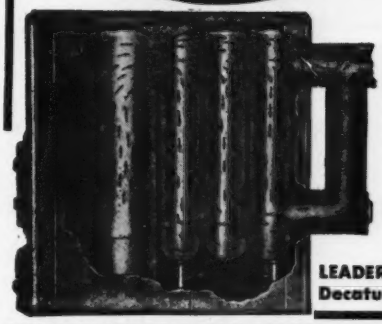


Utility
Room
Units

Automatic
Water
Heaters

e QUINCY STOVE MFG. COMPANY, Quincy, Illinois

Leader KOOLSTACK FURNACES
FOR STOKERS
OIL or HANDFIRED
50,000 to 200,000 BTU's



Patented Damper Uses All the Heat in the Added Heating Surface

THAT IS SOMETHING TO SELL

LEADER IRON WORKS, Inc.
Decatur Illinois

GILCO
Automatic
FURNACES and WATER HEATERS
J. L. GILLEN CO.
DOWAGIAC . . MICH.

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GRAVITY AND FORCED AIR
FURNACES
DURABLE • EFFICIENT • DEPENDABLE • ATTRACTIVE
THE FOREST CITY FOUNDRIES CO.
2500 WEST 27TH ST. • CLEVELAND 13, OHIO

MERCOID
(LIGHT ACTUATED) CONTROL SYSTEM
TIME TO LOOK AHEAD
Keep an eye on the events and opportunities on the horizon. Postwar planning is now becoming more intensified as the war proceeds in the direction of "V Day." Look for oil burners equipped with the Mercoid Visaflame.
TESTED IN THE LABORATORY OF EXPERIENCE
THE MERCOID CORPORATION
4209 BELMONT AVENUE CHICAGO 41 ILL

Elgo Ventilating Specialties

Tighter Closing Automatic Shutter

A shutter with a spring mechanism that holds the louvres tight shut when the fan is not in operation. In addition, it is weather-stripped around the inner edge of the frame, preventing the entrance of wind, rain, snow and insect pests. Sizes 10" to 60" square—also rectangular.

Write for catalog and prices

"ELGO" TYPE AUTOMATIC SHUTTER
Rear View (Closed)

Free CATALOG

ELGO SHUTTER & MANUFACTURING CO.
6966 W. Jefferson Detroit 17, Mich.

"GOOD WILL" REPAIR PARTS

Large and Complete Line—For All Makes of
FURNACES, STOVES AND BOILERS
Orders Filled Promptly

THE F. A. KLAINE CO.

(Established 1849)
401 West Front Street Cincinnati 2, Ohio

Effective
Roof
Ventilation

Airidge Ventilation

All materials and sizes. Shipped in 10-ft. lengths. Dampers optional.

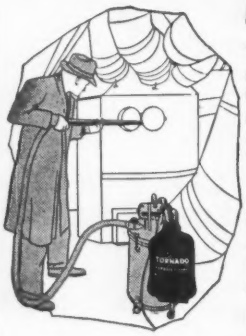
ÆOLUS DICKINSON
33RD STREET AND S. ARTESIAN AVENUE
CHICAGO 8, ILLINOIS

FEW AS GOOD — Stokers, Handy Fittings, Repairs
GILTEDGE FURNACES
NONE BETTER — Blowers, Rock Island Registers, Humidifiers

All genuine Gilt Edge repairs carry a label saying "Genuine Gilt Edge Part." We have genuine Gilt Edge repairs for Gilt Edge Hummer, Gilt Edge Crescent, Gilt Edge Radium, Gilt Edge Badger, Gilt Edge Liberty, Gilt Edge Solar, Gilt Edge Fireside, 500, 600, 700, 800 and 900 Series Furnaces and Gilt Edge Round and Square Boilers. We are successors to the Schwab & Sercomb Co., R. J. Schwab & Sons Co., and the Schwab Furnace & Mfg Co. Buy from jobbers who carry genuine Gilt Edge repairs or write us. We can furnish a Gilt Edge Furnace on the proper priority.

SCHWAB FURNACE CO. 193 SO. SECOND STREET MILWAUKEE 4, WIS.

TORNADO FURNACE CLEANERS



Now Available!

TORNADO Furnace Cleaners are a sure way to cut fuel costs, prevent trouble and deterioration. Compact and portable, they can be taken into the basement and moved up close to the work to do a quick, effective job.

Tornado Furnace and Boiler Cleaners use only full size, genuine G. E. motors, with ruggedness and power, and equipped with tools to do a better job, saving time, effort and money. *Request details.*

BREUER ELECTRIC MFG. CO.
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NOW ONLY $1.00!

SECOND EDITION
of
Platte Overton's

FORCED AIR HEATING

215 Pages—6"x9"—Illustrated—$1.00

Here is a book that presents in simple, readily understandable form ALL the information you need to enable you to design any forced air heating system correctly and efficiently. Outlined in it is a model procedure of design, based on wide experience, which you may follow with absolute confidence on any of your own jobs.

Not only will this handy volume save you hours of time in planning forced air systems, but it will help you in many ways to avoid mistakes in your calculations. Its 23 chapters include, among a wealth of other necessary data, 15 valuable charts, 23 time-saving formulas, and 19 practical tables, with detailed explanations of their proper use.

Every contractor now doing or planning to get into forced air work should own a copy of this book. To get yours, simply send $1.00 with your name and address today to the address below.

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6 N. Michigan Ave. Chicago 2, Ill.

For Balanced Atmosphere..

THERMO-DRIP HEAT-CONTROLLED HUMIDIFIERS

AUTOMATIC HUMIDIFIER CO. Cedar Falls, Iowa

AMERICAN ARTISAN Service Section

SERVICE SECTION: Rates for display space in the Service Section are $5.00 per inch per insertion. One-inch minimum space accepted.

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Classified

WANTED
ROLLER DIE MACHINE

8 Spindle; 5 or 5½ Diameter Spindles; Motor Driven.

Interstate Machinery Co., Inc.
1433 W. Pershing Road
Chicago 9, Ill.

FOR SALE

For Sale—Rock Wool blowing machine, Bartlet Brainard Electric motor, ¾ hp universal motor complete ready to operate. Address Key No. 593, American Artisan, 6 No. Michigan Ave., Chicago 2, Ill.

TIN SHOP—Complete set tinner's tools with 8 ft. and 4 ft. break; no other metal workshop in town of 6,000; plenty work. M. C. Post, Brookfield, Mo.

HELP WANTED

Exceptional opportunity for well qualified man to take charge of designing, estimating, and drafting in sheet metal job shop in Middle West city. Attractive salary and bonus schedule. Unlimited post war possibilities. Replies confidential. Address Key No. 592, American Artisan, 6 No. Michigan Ave., Chicago 2, Ill.

Experienced sheet metal man and furnace installer. Excellent postwar future. State age, experience. Steady work. Salary and bonus. Barker Furnace Company, 607 Washington Street, Dayton 7, Ohio.

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GRAND RAPIDS FURNACE CLEANERS

Write for Details

DOYLE VACUUM CLEANER CO.
227 Stevens St., S.W.
Grand Rapids 7, Mich.

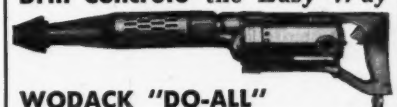
Trademark
YAGER'S Soldering Salts — Paste
Reg.

Two standard fluxes for all soft soldering. Safe, quick, certain. Buy them at your jobbers or write us if he cannot supply you.

½ lb., 1 lb., 5 lb. cans; 2 oz., 6 oz., 12 oz.

ALEX. R. BENSON CO., INC., HUDSON, N. Y.

Drill Concrete *the Easy Way*



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Saves time and money installing expansion anchors. Drills concrete to 1⅜" dia.; metal to ⅜". Two tools in one. Easy to maintain. Universal motor. Star drills in 17 diameters. Also chisels, bull points, etc. Write for bulletin No. 644.

Wodack Electric Tool Corporation
4627 W. Huron St. Chicago 44, Ill.
Telephone AUstin 9866

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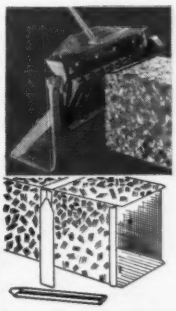
THE COMPLETE DRIVE CLEATING MACHINE

SAVES MORE TIME per joint of pipe, over ordinary hand methods, than any other machine used on square pipe work . . . and it is USABLE MORE OFTEN per job, because it edges the pipe and makes drive cleats to join them together.



NOW TWO SIZES

NO. 12
Takes All Sizes Up to 12"

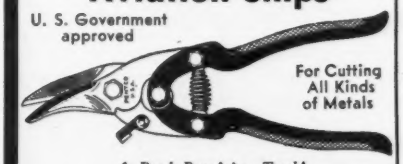
NO. 18
Takes All Sizes Up to 18"

SEND FOR DEALERS' LIST.

R. E. SMITH 1513 MONROE, WAUKEGAN, ILL.

Pentco Improved Compound Action Aviation Snips

U. S. Government approved

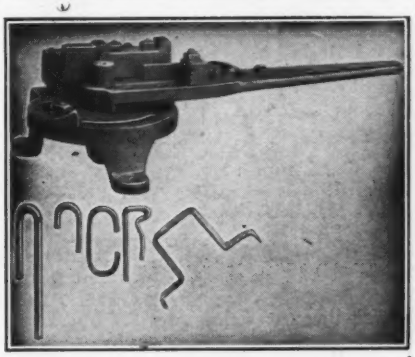


For Cutting All Kinds of Metals

A Real Precision Tool!
Maximum Power—Minimum Effort
Right and Left Cut

Blades made from alloy steel hardened and tempered for rough use. Will cut with ease all grades of steel. Side locking feature that will not interfere with cutting blades. Case hardened bolts. Made in four different types. Write for catalog S.

PENN TOOL CO.
2415 N. HOWARD ST., PHILADELPHIA, PA.



THE HINMAN BENDERS

Angle & U, Eye and Pipe

Write for catalog.

manufactured by

L. R. EVANS MACHINE COMPANY
SANDWICH, ILLINOIS

NO WAIT—NO PRIORITY

BEADERS: NO. 4 NIA., 24 ga.

BAR FOLDERS: HAND—30" x 20" NIA: PEXTO; 60" NIA. COMB. FOLDER & BRAKE.

PIPE FOLDERS: 60" NIAGARA POWER.

CAN MACHY: NO. 190 TORRISWOLD HORIZONTAL AUTO. BOTTOM SEAMER; NO. 22 CAMERON POWER SQUEEZER & FLANGER.

NEW 14" x 6' LYON-ROBBINS, GEAR HEAD, No Priority Required. Immediate delivery.

LATHES: 16" x 6' PRATT & WHITNEY. Q.C.G.; 14" x 6' BRADFORD, Q.C.G.; 14" x 4' LODGE & SHIPLEY.

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ANGLE: 6 x 6 x ¾" WICKES, Triple Back Grd.: **LEVELER:** 5' NILES, 63" rolls, 6¼" dia.

SHEARS, SQUARING: 8' 16 ga. POWER SQUARE; No. 1132 NIA. **ROTARY;** No. 6 QUICKWORK, 1" cap. 48" thrt.; 14 ga. YODER, 60" thrt.; **SHEAR & CIRCLE,** QUICKWORK CIRCLE, 36" throat, 5/32" cap.

SPOT WELDERS: 250 KW FEDERAL PRESS TYPE; 25 KVA THOMSON; 20 KVA GIBB PRESS TYPE; 10 KVA, 13 KVA, 15 KVA A.E.F.; 12 KVA ACME; 10 KVA TOLEDO, 10 KW FEDERAL.

These are but a few of the machines available in our large and diversified stock. Let us help you with your engineering problems—We solicit your inquiries for machines to do your war and post-war work.

INTERSTATE Machinery Co., Inc. **Yards 5800**
1433 W. Pershing Rd., Chicago 9, Ill.

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this FREE display will Sell.. HONEYWELL Electric Janitors FOR YOU!

Honeywell Electric Janitor damper controls are now available. This display, illustrated above, will show your prospects how the Electric Janitor conserves fuel, provides even temperature and saves countless steps. A display is furnished FREE with an order for one or more sets of Electric Janitor damper controls. The display shows just how the Electric Janitor works—what it does. Use it to show how it is only necessary to set the thermostat at whatever temperature is desired and let the Electric Janitor do the rest. Point out how by saving up to 30% of your coal bill, the cost of installation often can be paid off in even a single season. The Electric Janitor package is complete and can be easily and quickly installed on any coal fired heating plant. The average home owner can install it himself, if your service department is undermanned.

The coupon below is an easy way to get started. Use it to cut yourself in on the profits dealers are making right now with Electric Janitor sales.

MINNEAPOLIS **Honeywell**
CONTROL SYSTEMS

SEND THIS COUPON TO YOUR "HONEYWELL" JOBBER.

Please enter our order for ..... Electric Janitor Control sets and include one set mounted on FREE display board.

Firm Name.....

Address.....

City..... State .....

The Effect of Dirty Air Filters on the Performance of a Winter A. C. Unit

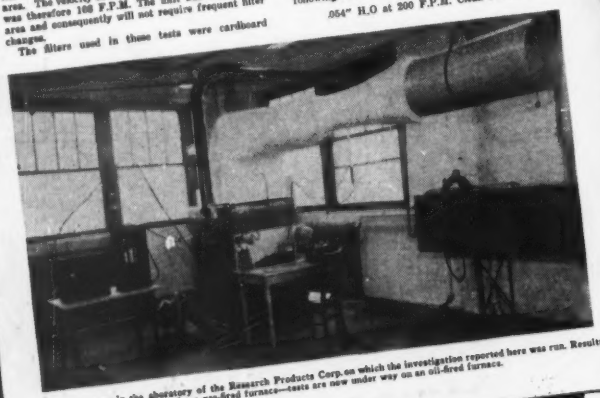
By Dean L. Hunsicker
Research Products Corp., Madison, Wis.

(1) Operating a warm air furnace equipped with dirty filters decreases the heat output capacity of the furnace as much as 25% of rated output.
(2) Operating a warm air furnace equipped with dirty filters reduces the air volume circulated 20 to 25%.
(3) On continuous burner operation, the efficiency of heat output of the furnace remained constant at 69% when the filter resistance was increased.
(4) With the burners operating intermittently, the efficiency was 78% with clean filters and dropped to 73% with dirty filters in the unit.
(5) With clean filters and burners operating intermittently, the cost per unit B.T.U. output is X. With dirty filters and burners operating intermittently, the cost per unit B.T.U. output is 1.07X. With clean or dirty filters and burners operating continuously, the cost per unit B.T.U. output is 1.13X.

THE unit used in the tests is equipped with a blower having a capacity of from 375 to 1,050 C.F.M. according to data sheets. The blower speed was adjusted so the blower delivered approximately 500 C.F.M. with clean filters installed in a 2" bonnet pressure. The unit was equipped with 2-16"x25"x2 Air Filters which had 4.62 square ft. of net filter area. The velocity of air flow through the filter media was therefore 108 F.P.M. The unit has ample filter area and consequently will not require frequent filter changes.

The filters used in these tests were cardboard frame 16"x25"x2" filters. In order to obtain dirty filters, the filters were placed in the unit and cotton linters were introduced into the intake air stream. The cotton linters were placed in an 8 mesh sieve and brushed through the sieve into the air stream. This method of feeding coated the filters uniformly over their intake surfaces. At intervals the filters were removed and their restriction was checked in the air filter test apparatus. The filters were built up to the following resistance in sets of two:

.054" H.O at 200 F.P.M. Clean Filters



Test set-up in the laboratory of the Research Products Corp. on which the investigation reported here was run. Results are for a gas-fired furnace—tests are now under way on an oil-fired furnace.

CLEAN FILTERS SAVE FUEL

Send For This Proof

The No. "200" Series
RESEARCH AIR FILTERS

2 strong permanent wire grids—with removable RIP-CLEAN filter pads between. Filter pads are self-sealing so no unfiltered air can slip between the filter and the supporting ledge.

- Dirty filters may cut the heat out-put as much as 25%.
- Dirty filters may cut the circulation of heated air 25%-resulting in unevenly heated rooms, in over-worked equipment.
- Dirty filters may result in a 7% higher fuel bill. Conclusion—change filters at least once or twice a year.

Here's convincing proof that clean air filters will cut fuel consumption in forced warm air installations . . . that clean air filters will pay their way and at the same time insure clean, healthier air . . . cut down dusting.

Fill in the coupon at the left—get your free copy of this interesting study.

free!

Research Products Corporation
Madison 3, Wisconsin

Please send a copy of your latest study showing the effect of dirty air filters on the performance of winter air conditioning units.

Signed _____

Firm _____

Address _____

RESEARCH PRODUCTS CORP.
1015 E. WASHINGTON AVE.
MADISON 3, WISCONSIN